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Pulp and Paper Magazine
OF CANADA

A Semi-Monthly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades.

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THE UNITED STATES TARIFF AND CANADA

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A great deal has been published during the last few weeks on the developments and changes which the new American tariff has undergone at the hands of the Senate Committee. The influences at Washington seem to be most varied and very effective. Changes have been made since the matter went before the Committe, only to be rescinded or withdrawn at subsequent sessions. This is due doubtless to the fact that at one time the influence of the paper manufacturers prevails, while at another time the influence of opposing interests had sway.

Mr. John Norris, Chairman of the Committee on paper of the American Newspaper Association, has been called before the Committee to give further information on the proposed schedules. He presented his case in the usual manner, and lost no opportunity to take advantage of all circumstances dealing with the matter. Mr. Arthur C. Hastings has also appeared before the Committee in the interests of the paper manufacturers, and argued mainly on the point of news print and sulphite. Senator Johnston, the Chairman, it is believed, leans towards a duty on newsprint of $2.00, and at one time in the discussion it looked almost certain that this was going through. The Bill as it stands, however, will not recommend to the Senate any duty on newspaper, but retains the joker on the sulphite clause. High legal authorities state that this clause practically puts a duty on all sulphite. That the Treasury Department in discussing the matter with a representative of the Dominion Government states that since the wording is the same as that of the former section 2 in the Reciprocity Act, the ruling will be the same, and that sulphite from freehold lands admitted free of duty.

This clause is the most unsatisfactory part of the whole tariff, since, as Mr. John Norris has pointed out with truth, such attempts to influence Canadian policies have had a most adverse effect on both the American manufacturer and consumer. He assures the Committee on well-founded authority, that such influences will have no effect in urging Canadians to withdraw their export restrictions on pulpwood. These restrictions have come to stay, and are a necessary part of our policy for the conservation of Canadian resources. At the present time, we manufacture in Canada only 47 per cent. of our pulpwood, the remainder being sent to the United States; surely, we must have the right to manufacture half of our raw material, yet, in spite of this fact, we are urged to take off restrictions, which would mean the rapid absorption by competitors of our raw material, which already needs most careful conservation. The idea of Canada's unlimited and inexhaustible wood resources is most erroneous. We have frequently pointed out in our columns on authoritative statements, that our resources are by no means as inexhaustible as the popular idea indicates.

In spite of this, we see that our American neighbors, while drawing from us this heavy toll in pulpwood, are refusing to give us an equal standing with foreign competitors in their markets. The ruling last week of the Treasury Department when they decided not to appeal the decision in a favored nation's treaty, which refunded all the duty paid by foreign countries under section 2 of reciprocity, now makes pulp, and paper valued at under four cents a pound, come into the American market free of duty from all countries. This makes the handicap of $3.33 on sulphite, which the Scandinavians are now paying, an advantage to them, and we will doubtless find very keen competition for business on the American side by our Canadian sulphite mills, which have to compete against free European pulp. This situation will stand until the new tariff is passed by the Senate and Congress, which in its present form, will make little difference to Canadian manufacturers. They further ask us in the new tariff to pay $2.00 a ton on sulphite, while making foreign pulp free. Surely, a country supplying a million cords of wood a year to keep American paper mills running earns an opportunity for equal tratement at their hands. We are inclined to feel, as Mr. Norris pointed out, that instead of simplifying the situation, the sulphite clause of the American tariff will provoke ugly complications, which it will require years of intelligent and delicate handling to adjust. "Nothing could be done," he argued, "by compulsion or tariff threats, to provide wood for the American paper industry. That day had passed. Canada controlls the pulpwood supply, and insists that it be dealt with upon a reasonable basis."

The Canadian Government has under consideration the revision of the general Canadian tariff at the next session. If our American friends are anxious to secure better conditions in the Canadian market for paper, especially in the higher grades, of which they supply us with a large tonnage, they should at once remove the sulphite clause as it stands and give Canada equal treatment with other countries in their markets. Already in Canada, there is a large agitation for the reduction of the duty on sulphite, which under present circumstances, is already too high. The manufacturers of high grade papers, which to a large extent, are imported from England and pay 15 per cent. duty, have to pay for their sulphite, which comes from American sources, 25 per cent. Surely, this is an anomaly which should be speedily adjusted. To ask a manufacturer to pay 25 per cent. on a raw material when the finished product is only protected by 15 per cent., is an absurd circumstance. English paper makers can buy Scandinavian and German sulphite, and ship the paper into Canada under the 15 per cent. duty. How can Canadian manufacturers take their fair share of this market and pay 25 per cent. on sulphite? The sulphite industry in this country, on its own statement, does not need as much protection as this, and we should be very glad to give our American friends as many concessions as possible, if they will but accord us the same treatment as they give our competitors. In the face of the Canadian tariff coming up for discussion, we think it is most unwise for American tariff makers to ignore the Canadian position and requests for fair play. Our paper imports are increasing at the rate of one and one-half million dollars a year, of which the Americans might secure a much larger share under a better Canadian tariff. This Canadian tariff, however, will not be adjusted in their interests unless we find them giving us just treatment.

The question of advances on ocean freight rates, both import and export, is being discussed in Canadian circles. The question is being investigated by the Montreal Board of Trade, who seem to find that carriage rates are higher than the service warrants. Ocean freight rates have been advancing each year, and this question has come up for discussion at the opening of every session. It is hoped that the Imperial Government will investigate the matter, and secure relief from a condition which is rapidly assuming menacing proportions.

Our trade agreement with the West Indies appears to have been negotiated at an auspicious time. The islands and the other colonies seem to be on the eve of a new development. Mr. E. H. S. Flood, the Canadian Trade Commissioner at Barbadoes, has been active in urging the Governments of the Colonies to improve harbor and navigation facilities. Already extensive plans have been adopted by many of these Governments. Such an advanced step will mean much to the paper industry, which should find a growing opening in the West Indies for Canadian paper. In the lines of news and wrappings, there is no reason why Canada should not supply all the paper requirements of these Islands. Under the improved conditions, which will shortly be affected, Canadian paper men can hope to find new outlets for their product.

FOREIGN SULPHITE

The entire American and Canadian Sulphite Markets are in a state of aggravated unrest due to a combination of a number of causes. The recent ruling under the United States favored nation's treaties has entirely upset market conditions. The general price of sulphite in the United States and Canada will, as a rule, drop about two dollars. Salesmen will have greatest difficulty in selling the lower grades. The rebates of duties under the ruling will go largely to the brokers, only in cases where the purchaser had inserted to the clause in his contract will he benefit by the rebate. The State of New York generally in the northern section at least has been buying sulphite without contract, only on letter quotations. None of these purchasers will benefit by the rebate just announced. The action of the American Government in this case was most ill-advised, for with a new tariff up for discussion, which will cause a market disturbance when it comes into effect, they have allowed a second disturbance in the announcement of the decision to refund all duties paid under section 2 of the Canadian Reciprocity Act by all foreign countries. How much better it would have been for healthy market conditions to have postponed this announcement until the tariff matters were settled. The result is that the buyer of sulphite on the American side is at loss to know actual conditions, and all markets are unsettled.

All paper under four cents now comes into United States free, from these countries. Immediately all stocks of kraft and book papers under that figure will be dumped into United States and stored in warehouses if necessary in order to avoid the changes which the new tariff will bring into effect.

A circumstance has also developed in Canada which may need attention under the anti-dumping clause of the tariff. Scandinavian sulphite is being sold here to mills at a delivered price less than it can be purchased in Sweden. These rebates which our Government gives on paper shipped out of the country allows this condition to exist, which practically makes sulphite free as well in Canada at least so far as export paper is concerned.

The price of sulphite has advanced about a dollar on the English markets, but due to the abnormal and unsettled conditions here we find a softening of the price.

Reports from Washington and elsewhere show that we may hope to see the anomaly in the sulphite clause of the American tariff removed. Certainly conditions in the sulphite market are most unsatisfactory, and American tariff blunderers have enormously aggravated the situation.

NEW BRUNSWICK LUMBERMEN PROTEST

The Lumbermen and Limit Holders' Association of New Brunswick is to be revived and reorganized for the purpose of presenting the position of lumbermen and paper men to the New Brunswick Government under the new timber license law which has gone into effect there.

Recently, the St. John Globe took very strong exception to the position of the Pulp and Paper Magazine in denouncing the Government's policy. They claim that no objection was coming from other sources, but at the present time, we find all lumbermen and everyone interested in pulp and paper development, denouncing the Government's absurd policy in most emphatic terms. Such a narrow policy as has been made into law in that Province, has not only discouraged the development of a number of very large paper mills which were practically assured, but it has even incurred the resentment of the small lumbermen, to whom the Government was attempting to cater. The law was put through as a straight voting proposition, but evidently the Government has miscalculated where the votes lay. All the most prominent lumbermen in New Brunswick attended the meeting, and were equally emphatic in the expression of their opinion of the Government's new measure. Mr. Angus McLean, of Bathurst, pointed out that his firm were prepared to develop one of the largest pulp and paper propositions in the Dominion, provided the Government would give them a reasonable show. They have, however, turned a deaf ear to his and other requests, with the result that development has been deferred or cancelled. What an absurd proposition for any Government to expect large amounts of capital to be invested either under the present terms of leases, which only run for five years more, or under the new law, which only gives them leases for thirty years, at the same time cancelling all advantages secured under present license. We trust that the lumbermen will be able to open the eyes of the Government to the gross injustice which has been done.

LABOR DIFFICULTIES

Our esteemed contemporary "Paper" deals with the labor troubles in the United States in an exhaustive editorial in the issue of June 18th. Labor difficulties with American paper makers have assumed enormous and threatening proportions. The labor unions which are highly organized on the southern side of the boundary, are increasing the cost of manufacture to an alarming extent. We quote as follows:

"Year after year the price paid for raw materials and labor has been steadily advancing, and yet there seems to be no end of this upward movement. The better the wage paid to the average workingman, the less he appears to be satisfied with what he receives, and the less efficient as a rule his services become.

"What seems, however, to be a more serious situation is that in the West. There the demand is being made at two mills for the adoption of the three-tour system, and it is openly announced by the labor leaders that their purpose is to make similar demands all along the line.

"Should such demand be made, there will probably be a long and hard struggle, for the manufacturers all appear to be fully determined to stand against the dedemands, and to resist the efforts of the strikers to put the three-tour system into effect. Indeed, most manufacturers are left no choice in the matter at all. The constant increase in the cost of production, with no corresponding advance in the price of paper, and the threatened reduction in the number of men employed as a consequence of legislation affecting the tariff, makes it utterly impossible to grant the increase demanded and continue the operation of the mills, without running at a loss.

"Many have been willing to go ahead with meager profits and some barely breaking even, but certainly there is no object in continuing the operation of any plant when it is actually running at a loss. Therefore there is nothing left to do but to fight or quit.

"Few realize what it means to change from the two-tour to the three-tour system. First of all it requires an additional force equal to fifty per cent. of that now employed, and everybody knows that for most purposes in the operation of a paper mill it is difficult to get competent men even to the number now required. Should it become necessary to supply the mills with fifty per cent. more men in every department, it would mean that grossly incompetent people would be put in responsible places.

"There might be some reason for demanding the change in system if the men were asking to be paid only for the actual hours engaged at the same price per hour they are now receiving; but they are demanding the same compensation per day for a materially shortened period.

"It cannot be said that the men working on the two tour system are overworked, for the class of labor thus employed is not continuously engaged in actual effort. The men are simply required to be on duty ready for such service as may from time to time be required. But in the main their duty is simply one of watchfulness, and in this they assist one another, so that there is not even a continuous responsibility. Their actual labors are comparatively light. Moreover, a great many of the employees, realizing that it is utterly out of the question to expect the same pay for eight hours that they have been receiving for twelve, do not want the change. They prefer to work a longer time and receive a greater compensation.

"The time is certainly at hand when paper manufacturers must take a firm stand and to take it together; otherwise there is no end to the constant increase in manufacture and cost.

"It is our opinion that the industry should as a whole adopt the plan of paying its labor by the hour. If it becomes generally understood that this is to be the rule and that therefore the compensation for the day is to be measured strictly by the number of hours worked, we do not believe that a great many would want to shorten the length of the working day. They will, of course, find fault with the wage and perhaps strike for a higher rate per hour, but we believe it would simplify matters very much to proceed on that basis.

"We have not the slightest disposition to withhold from the laboring man the proper and even generous reward for his toil. There is not the slightest doubt that the laborer is worthy of his hire. On the other hand the man who by his intelligent industry establishes an enterprise and invests therein not only his own money, but the money which comes to him through the confidence the public has in his integrity and capacity, is also entitled to some consideration. The man who builds up an industry, thereby creating a market for the services of the laboring man, is a public benefactor and deserves a reasonable return upon his investment of brains and money."

We are in Canada, constantly feeling the effects of a similar unrest, which is by no means as acute as the American manufacturers must face. The movement in Western United States is most decided and determined, and the demands of labor are as unreasonable as they are emphatic. There is more and more becoming a tendency by the United States and Canada to forget the interests of a man who has spent his efforts, his time, and in most cases his life, in developing an enterprising concern and cater to the clamor of the labor demagogue or the unfounded pleas of misinformed agitators. With the advent of American paper mills into Canada in increasing numbers, we are feeling the effects of a spirit of unrest in our own mills.

In another column we carry an account of the strike at the Booth mill, which points out that although the price per hour has been raised 3½ cents, conditions do not seem to be satisfactory to the men. It is a most unreasonable demand on the face of it to have to ask the same wage for eight hours as has been customary for eleven and thirteen. Of course, every paper mill expects that when the change from the two to three-tour system is instituted, an increase of labor costs must follow, but to expect the same wage and at the same time increase the men in the mill by almost fifty per cent. is quite absurd. We trust that all employees who share the benefits of a prosperous organization, will exercise care and reason in demands made upon mills which, in many cases, are only getting started on a substantial foundation.

BRITISH COLUMBIA AND FOREST INSECTS

The Province of British Columbia has instituted a careful investigation to be carried on this summer on the damage done to standing timber or forest products in British Columbia. This study will be conducted by an expert Entomologist, Mr. Swaine, who is employed by the Dominion Government. Although the work is to be done by a representative of the Dominion Government, it will be carried on in co-operation with the Forest Branch of the Lands Department, as it is felt that such co-operation will assure the best results.

The protection of the forest from insects is not nearly so important to the Forest Branch as is the protection of the forest from fire. There is no doubt, however, that great damage has been done in different parts of North America and even in British Columbia, by forest insects; the annual loss from this cause in the United States is placed at $1,000,000.

It has been found that destructive forest insects increase very rapidly in numbers where logging operations have been carried on and where fire has killed and weakened the trees. The amount of damage from this cause has not yet been great in British Columbia, but as logging increases during the next few years danger will increase. Timber owners in some sections of the Province have already brought the matter to the attention of the Forest Branch. Where insects have proven destructive in the Northwestern States, entomologists have usually been able, by studying their habits, to devise some means of controlling them without materially increasing the expense of the logging operations.

Mr. Swain's work this summer in British Columbia will be devoted towards those instances where greatest damage has resulted from insects, and his chief object will be to ascertain any practicable methods of controlling such damage.

The work is most commendable, and will institute an advance step in the preservation of forests and the supply of raw material.

EDITORIAL COMMENTS

The article appearing in this issue on "Stone as a Material for Press Rolls," by Mr. DeCew, is worthy of careful persual by everyone interested in making a better grade of paper. The stone press roll has rapidly risen to popularity and is displacing the hardwood rolls on all fast and high-grade paper machines. Mr. DeCew points out the nature of the crystalline character of this stone and the advantages over the old type wooden roll.

DETERMINATION OF SO_3 IN SULPHUR AND PYRITE ROASTING FURNACES

By E. RICHTER, D.E., D.Sc., HAWKESBURY, ONT.

Among the many chemical industries, using sulphur or pyrites as one of their raw materials, are, perhaps, most prominent the sulphuric acid and the sulphite pulp manufacture. The former and older one, well known in all its stages, thoroughly tested in regard to its conditions and efficiency. The second one, much younger, still offering many problems, not only in regard to engineering, but also pure chemical. Both industries are using the oxydation product of sulphur or pyrites in large and growing quantities, but while it is rather desired in one process, to convert more per cent. of sulphur into sulphurtrioxide, it is absolutely necessary in the other to avoid the forming of this compound as much as possible, not only because the SO_3 formed means a pure loss in regard to sulphur used in the sulphite mill, but also because the peculiar qualities of the sulphuric acid formed as a fog which renders it liable to enter the cooking liquor. From cooking tests and experiments with the liquor used, we know, that nothing is more apt to spoil the entire result, than a certain percentage of sulphuric acid contained therein. Not only the yield, but also the quality of the pulp as well, would be affected in an undesirable way. Unlike the sulphuric acid industry, we have, therefore, in the sulphite manufacture the question:

How much SO_2 is formed in sulphur or pyrites burners, and are we able to avoid the forming of that substance altogether, or can we employ means to keep its percentage so low, that it becomes a negligible quantity.

To avoid the forming of SO_3 altogether, seems unlikely, from a theoretical point of view, therefore the whole problem rests with the other two questions.

No. 1. How much sulphur-trioxide is formed, appears to be easily answered. All we have to do, is to make actual tests on the burner gas, according to Reich and Lunge.* The method may be described here: Two separate and special constructed absorption bottles are used. One is filled with a measured quantity of 1/10 norm. Sodium caustic solution, the other with 1/10 norm. iodine solution. A certain amount of the burner gas is passed through the bottles, by means of a suction flask, filled with water. The collected water allowing an estimation on the volume of the gas used.

Some of the tests made in this way may be given:

No.	$\%SO_2\ SO_3$	$\%SO_2$	$\%SO_3$
1.	10.30	10.48	—0.18
2.	16.90	15.20	+1.70
3.	16.02	16.20	—0.18
4.	11.18	11.55	—0.37
5.	8.83	8.87	—0.04
6.	10.58	10.38	+0.20
7.	11.03	11.20	—0.17
8.	10.33	10.40	—0.07
9.	6.69	6.38	+0.31
10.	13.10	12.60	+0.50

When tests had revealed the surprising fact, that sometimes the percentage of SO_3 was negative, it was thought this impossible figure was the result of bad sampling. Arrangements were, therefore, made to have the gas drawn through the iodine and caustic alkali solution simultaneously. Then different places of the plant were used for testing. When some of the results about 50 per cent. were still negative, a rather elaborate distributor for the gas used during sampling was blown from glass, but, nevertheless, the experiments did not prove successful.† As every precaution had been taken, there were only two possibilities to explain the failure: 1. The reactions between SO_2, SO_3, iodine and KOH do not take place according to the theoretical equations—

$$SO_2+H_2O+I_2=H_2SO_4+2HI$$
$$\text{and } SO_3+2KOH=K_2SO_4+H_2O$$

or (2) that the sulphur burner gas contained some gaseous substance, which would react with iodine and not with the KOH solution.

Some experiments were made in order to define the substances referred to under (2) the idea was to condense the entire gas sample and separate the constituents by fractionate distillation. Owing to the lack in equipment, the author was, however, not able to continue in this line. The question (2) is, therefore, not answered, and the possibility still exists, that some organical or other gas is the cause for the irregularity. My personal opinion, however, is, that the trouble most likely comes from the chemical reactions which do not take place according to the theory. At the same time it should be borne in mind, that it is very difficult to absorb SO_3, or rather H_2SO_4 which is often formed as a fine fog.

During some tests it was noticed that sulphurtrioxide had been precipitated in the supply pipes. This could be noticed especially near joints, where the gas passed from a warm tube in a cooler one. This observation proved to be of some value later on, its first significance was, that it was necessary to keep the temperature of the gas in the supply pipes as high as possible.

Finding that the method of Reich and Lunge did not give satisfactory results under different circumstances, the author tried to effect the determination of the SO_3 contents of the gas in another way, and the idea of using chemicals was abandoned altogether.

It is well known ,that a solution of pure sulpuburous acid in water alone, will give a considerable amount of SO_3 upon standing in contact with air, even at ordinary temperature, and as many of the available substances do not react at all, when employed in an absolute dry state, it was obviously better to work without them, if possible.

The next step was to try to condense the SO_2 and SO_3 in an absolute dry state, distill the sulphurous acid away, dissolve the residue in water and titrate or precipitate the SO_3 with bariumchloride. According to the accessible literature, the boiling resp. melting points of the substances are the following:

Boiling point of SO_2 8° C. 760 mm press.
Boiling point of SO_3 46° C.
Boiling point of SO_3 . . .
Melting point of SO_3 15° C.
Melting point of SO_3 50° C.

Unfortunately, when making these experiments, the cold which could be produced in our laboratory, was not low enough to allow the condensation of the sulphurous acid at ordinary pressure. Experiments were, therefore, made to have the gas in the condensation tube under 1 Atm. pressure. Although some of the gas became now liquified, it could be noticed that a considerable amount of SO_3 was still escaping. At the same time the apparatus became so unhandy through the necessity of working under pressure, that not more than one or two tests could be made per day, not considering the fragility, which would have caused much annoyance in a long run. The already mentioned discovery, that at least some of the trioxide was precipitated occasionally in the supply pipes, lead to the thought it might be possible to condense the SO_3 only and leave the rest of the gas intact.

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*Lunge, technical methods of chemical analysis. 1908, p. 302.

†The same has been observed by other chemists.

B is a 30-40 cm long absorption or condensing tube, filled with broken porcelain and garnet grains. It was cooled during the first experiments with ice and salt, but later ice only was found to be sufficient.

C is a bottle filled with water. It serves to suck the gas through the apparatus.

The gas entering the tube B being quickly cooled down, it was to be expected that the SO_3 would precipitate in the finest state. In order to give it a chance to settle, the velocity of the gas had to be taken small. Generally 1,000 cc. were conducted through the apparatus in 20-25 min. In order to remove the last amount of SO_2, purified and carefully dried air was conducted through the tubes afterwards. By cautiously bringing water in the absorption apparatus through e, the SO_3 is dissolved and the resulting sulphuric acid is finally precipitated with bariumchloride.

The first tests made in this manner gave the following results:

No.	Vol. % SO_2 SO_3	Vol. % SO_3
11	12.50	0.052
12	16.40	0.074
13	16.50	0.057

Therefore it seemed as if only very little SO_3 was present in the sulphur burner gas. The question was now:

1. Is it possible to condense the entire amount of SO_3?
   (a) In one tube.
   (b) Is the precipitation quantitative?
2. Is it possible to remove the SO_2 completely, and,
3. Is the velocity of the reaction SO_2 O SO_3, by excluding moisture at OC great enough to have any influence on the total percentage of SO_3 found?

To settle question 1 (a) the following experiments were made: Gas was conducted through two condensing tubes and the amount of SO_3 in each of them separately tested:

	1. Tube.	2. Tube.
gr. $BaSO_4$	0.0120	0.0014
gr. SO_3	0.0041	0.0005
cc. SO_3	1.14	0.14

The results show that in spite of the slow gas current 2,000 cc. were used some SO_3 was found in the second tube.

To answer questions 2 and 3, other experiments had to be made. From sodium sulphite and sulphuric acid, SO_2 gas was generated, carefully dried with conc. sulphuric acid, some of it condensed with ice and salt and redistilled at 8° C. The vapors, about 2 lits., were conducted through one of the absorption tubes. The remaining SO_2 gas was then removed with air, as usual. Surprisingly there was found—

0.0112 gr. $Ba.SO_4$ equivalent 0.0038 gr. SO_3.

Considering that the amount of SO_3 in the sulphur burner gas, according to experiment ——— was not very great altogether, the last found quantity of 0.0038 gr. SO_3 was by no means negligible. It seemed, however, impossible that the purified, condensed and partial distilled SO_2 still contained so much trioxide. In an effort to solve this puzzle the author decided now to make a blind experiment. Air which had been conducted through wash bottles filled with caustic alkali and conc. sulphuric acid was passed for 10 min. through one of the condensers, cooled to 0° C. It contained—

0.0040 gr. $BaSO_4$ or 0.0014 gr. SO_3

The same with two other tubes made—

Air passed through 20 min. 0.0058 gr. $BaSO_4$ equal to 0.0019 gr. SO_3.

Air passed through 20 min. 0.0058 gr. $BaSO_4$ equal to 0.0017 gr. SO_3.

In pursuit, every available apparatus B was now dried and rinsed with water, without passing gas or air through. The solutions after precipitating with bariumchloride and hydrochloric acid gave the following results—

Tube No.	gr. $BaSO_4$	gr. SO_3
1	0.0016	0.0005
2	0.0018	0.0006
3	0.0014	0.0005
4	0.0014	0.0005
5	0.0016	0.0005

From the above tests we can now conclude:

1. The aqueous extract of unused condenser tubes contains substances which become precipitated with bariumchloride. Whatever nature these substances are was not determined. The respective quantities can be considered as constant. 0.0005 gr. SO_3. Tests made later on, gave practical the same amount.

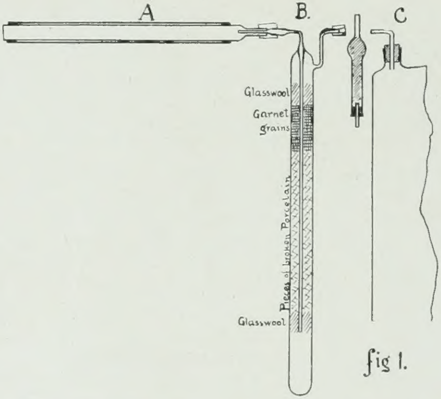


fig 1.

2. When air is passed through an ordinary wash bottle, filled with sulphuric acid, some of the latter is taken away with the gas current.

The test with the pure SO_2 gas was now repeated, but instead of using a sulphuric acid wash bottle to dry the gas, a tube filled with phosphorus pentoxide was employed. Again about 2 lits. of the gas passed through the condenser. The resulting amount of $BaSO_4$ or SO_3 was—

0.0018 gr., $BaSO_4$ or 0.006 gr. SO_3.

During another experiment with SO_2 oxygen was introduced simultaneously.

Found 0.0016 gr. $BaSO_4$, or 0.0005 gr. SO_3.

These last two tests show that the sulphurous acid (even when mixed with air) would have no influence whatever on the final result, when determining sulphurtrioxide in furnace gas. It was, therefore, at last only necessary to answer the above given question 1 (b), whether the condensation of SO_3 is complete or not. In order to get an idea about the prevailing conditions in this respect, the following experiments were made:

A little generator for trioxide A (Fig. 2) was filled with fuming sulphuric acid to such a height that the lower end of tube would just clear the liquid. The whole apparatus was dipped in water of 0° C. and after reaching this temperature throughout, the ends a and b were fused tight. With the aid of a thin platinum wire this generator was fastened to the balance and weighed exactly, the points a and b carefully broken off and connected with the other tubes, as shown in Fig. 2. About 2 lits. air were then passed through C, A and B, while A was kept warm with water. After a certain time the gas current was interrupted, generator A cooled down again to 0° C. with ice water and closed by melting off the capillary tubes c and d. Having collected every glass part of the original SO_3 producer, it was put on the balance and the loss in weight, equivalent to the SO_3 carried away, determined.

We will not discuss now the first more or less unsuccessful attempts to proceed in this direction. The idea proved to be available under the following conditions respective with the following apparatus.—Fig. 1.

A is a hard melting glass tube with an iron pipe as cover, the latter serving two purposes, namely, first, the protection, and, second, the heating of the glass tube where it projected out of the burner pipe.

Loss of weight on balance		0.0024 gr. SO_3
Found in first condenser	0.0021 gr. SO_4	
Found in second condenser	0.0008 gr. SO_3	
Total found	0.0029 gr. SO_3	
Minus 2 const. for tubes	0.0010 gr. SO_3	
Condensed		0.0019
Loss		0.0005 gr. SO_3 or 20%
Another experiment—		
Loss of weight on balance		0.0120 gr. SO_3
Found in first tube	0.0095 gr. SO_3	
Found in second tube	0.0006 gr. SO_3	
Total found	0.0101 gr. SO_3	
Minus 2 const. for tubes	0.0010 gr. SO_3	
Condensed		0.0091 gr. SO_3
Loss		0.0029 gr. SO_3 or 25%

When the second condensing tube did not contain much more than the constant amount contained in every apparatus, it was thought impossible that the SO_3 did not have time to settle, so the rather big difference in the quantity weighed and found must have had its origin somewhere else.

The fuming sulphuric acid used, was an ordinary one and its color yellow or brown. This acid was now purified by heating a larger quantity without boiling and collecting the developed fumes in well cooled flasks. It could be noticed that the first distilling product was brown for some time. Later the color disappeared. This second quantity was specially collected and the distillation or sublimation repeated with it. The end product was an almost colorless fuming sulphuric acid, and was considered of satisfactory quality. The next experiment with the purified acid in apparatus A, Fig. 2, gave:

Weighed		0.0235 gr. SO_3
Found in first tube	0.0213 gr. SO_3	
Found in second tube	0.0027 gr. SO_3	
Total found	0.0240 gr. SO_3	
Minus 2 const. for tubes	0.0010 gr. SO_3	
Condensed		0.0230 gr. SO_3
Loss		0.0005 gr. SO_3 or 2%

With this last test it was proved what seemed already probable, judging from the two previous experiments, namely, that the condensation of the trioxide in the apparatus used, is quantitative, and with this proof the foundation for the practical application of the method was given.

Some determinations of SO_3 of sulphur burner gases, made in two different sulphite mills, follow:

Vol. % SO_2 SO_3	Vol. % SO_3	Loss on sulphur in %
15.70	0.034	0.22
16.20	0.060	0.36
16.60	0.048	0.29
16.00	0.033	0.20
15.80	0.180	1.13
13.30	0.050	0.40
15.20	0.130	0.86
14.60	0.280	1.93
15.00	0.117	0.78
17.00	0.183	1.09
16.00	0.111	0.69
14.80	0.111	0.74
18.70	0.096	0.52
11.50	0.087	0.76
12.50	0.052	0.41
16.40	0.074	0.44
16.50	0.057	0.34
17.45	0.052	0.31
16.65	0.053	0.32
17.10	0.090	0.53

Nearly all tests were made with two condensing tubes, and, in most cases, the SO_3 was collected exclusively in the first one. The second one may, therefore, be considered mainly as a safeguard. By making the first tube considerable longer, the second probably could be omitted altogether.

PAPER AND PULP UNDER THE MICROSCOPE

By SIDALL AND BACON

(Special Series of Contributions to Pulp and Paper Magazine)

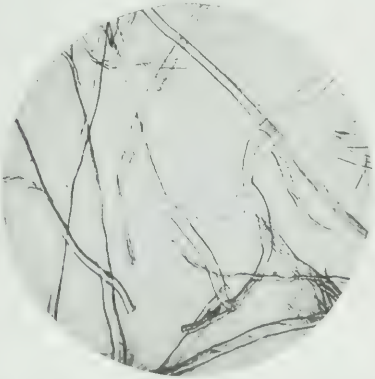
CHAPTER VI.

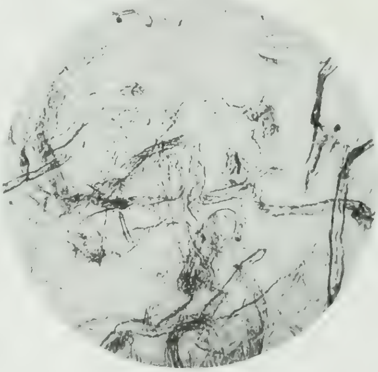
There is no doubt that the most important operation in the manufacture of paper and in the production of particular effects is the process of beating, while the extraordinary differences obtained with the same raw material simply by varying the conditions under which the beating operation is conducted, are well known.

The microscope may be usefully employed for investigating the changes which gradually go on when any raw fibre after being boiled is submitted to the action of beater knives. It is important that the changes which take place should be thoroughly understood, since any additional light thrown on the operation renders further application and extensions possible.

The hydration of the cellulose, which takes place when the fibres are beaten, is made use of in the production of a strong paper, and also in the manufacture of semi-transparent materials like imitation parchment.

When the beating process is carried to an extreme so as to produce a maximum hydration effect, the pulp loses its normal condition and becomes much more gelatinous. To such an extent can this operation be carried that the final product loses its fibrous character almost entirely, and a greasy gelatinous mass is obtained, which, on drying, shrinks down to a hard, horny substance.





During this gradual change the fibrous elements of the original pulp are greatly altered, not only in chemical constitution, but also in their physical characteristics. The fibres are gradually shortened and rendered transparent.

This may be clearly seen by comparing Fig. 1 with Fig. 2. The first represents the appearance of cotton pulp after a period of 6 hours' beating. This particular material was beaten in the normal manner for 6 hours in order to produce a strong high-class writing.

For experimental purposes the pulp was subsequently beaten for a much longer period and Fig. 2 represents the condition of the pulp in the beating engine at the end of about 40 hours. It will be noticed that the fibrous character of the pulp is much changed and the mass has become more transparent and gelatinous.

In order to ascertain more closely the effect on the fibre length, samples were taken from the beating engine at intervals of [illegible]. [illegible] were [illegible] prepared from these pulps taken at the various periods, and the average fibre length determined. The observations for fibre length were all made with the low magnification of 60 diameters, using a 1 inch objective. The classification adopted for this particular magnification was as follows:

	Average about.
1. Fibres measuring 34 to 25 tenths of a millimeter	30
2. Fibres measuring 24 to 18 tenths of a millimetre	20
3. Fibres measuring 17 to 12 tenths of a millimetre	15
4. Fibres measuring 11 to 8 tenths of a millimetre	10
5. Fibres measuring 7 to 4 tenths of a millimetre	5
6. Fibres measuring below 3 tenths (together with fibrillae which could not be measured)	3

In the earlier stages of beating the measurement of fibres was apparently easy, but as the beating process was continued, the proportion of fragments, and fibrillae or small well-beaten fibres, made it difficult to get accurate measurements, but at the same time by careful observation and the use of the classification already given, it was found possible to obtain fairly uniform results, as shown in the accompanying table.

Table Showing Percentage of Fibres Having Definite Lengths.

Tenths of a millimetre.

Hours beating.	30	20	15	10	5	Less than 3 and fibre of indefinite structure.
	%	%	%	%	%	%
4-6	14	20	28	20	16	2
8-10	4	12	24	33	22	5
13-15	1	9	23	30	32	5
17-19	..	5	23	36	30	6
21-23	..	..	20	32	35	13
25-27	..	..	7	31	47	15
29-31	..	..	3	30	47	20
33-35	..	..	1	20	52	27

It is clear from the above table that while it is extremely difficult to express the average length of the fibre in terms of a single number, the measurements indicate the gradual elimination of the long fibres and the large increase of fibres of small length.

(To be Continued.

STUDIES ON CELLULOISE

By EDWARD G. PARKER

The statement is made in text-books that cellulose is distinguishable by its non-reactivity to ordinary reagents. Methods of analysis start upon this assumption, removing the non-celluloses by more or less drastic means, leaving the basal fibre or cellulose itself untouched.

The portions which are removed are either hydrolyzed or oxidized, thus being rendered soluble. Excepting the elementary analysis of cellulose, there is in no method a complete reaction. Since hydrolysis and oxidation are not separate and distinct actions each due to definite reagents, but are rather parallel and coexisting with nearly all reagents used, it seems better to divide analytical methods for the determination of cellulose into—

(a) Those depending upon acids.
(b) Those depending upon bases.

The general reactions involve oxidation and solution where acids are employed, hydrolysis and solution where bases are used. The normal cellulose is least subject to those influences and remains as a fairly inert residue. It is, however, undoubtedly attacked to a certain extent, being converted, at least superficially, into oxy and hydrocellulose, as shown: chemically by reaction with Fehling's solution (the CO group of oxycellulose), and the fixation of basic aniline dyes (methylene blue); physically by a change from long fibre with definite microscopic characteristics, to a more or less finely divided powder and short brittle fibre, depending upon the extent of the attack.

Under (a) ther are mainly the methods of Schulze[1] (nitric acid and $KClO_3$ at 15° for 12 to 14 days; Muller[2] (bromine in diffused daylight at 20 for 2 to 3 days); Cross and Bevan[3] and modification of Dean and Tower[4] (chlorine).

These are based upon the main fact of oxidation and ultimate breaking down of the cellulose molecule completely. It therefore becomes a matter of choice, where any of them is to stop, and where the measure of the reaction is to be taken. This is especially true of methods depending upon the halogens, which invariably give lower results than those depending on the action of alkalies which follow, and upon which this work is based.

Under (b) we have mainly the methods of: Lange[5] (water and alkali, fusion at 180°); Honig[6] (glycerine at 110°); Gabriel[7] (glycerine and alkali; a combination of Honig and Lange methods); and the Weender process[8] or crude fibre method, which is most widely used, for the determination of fibre in plants and foodstuffs. It depends primarily upon the alternate action of dilute alkali (KOH) and dilute acid H_2SO_4).

It is perfectly true that all methods for the isolation of normal cellulose are more or less arbitrary, and even slight deviations from procedure, in time, concentration, or temperature will affect materially the results obtained. It is evident, nevertheless, that the nearer we approach pure cellulose the slower the reaction becomes, leading us to believe that it is the non and lignocellulosic constituents which give reactions their impetus and that when pure cellulose is reached a considerable period of time may elapse before the attack is recommenced.

We propose to show this in our work, by means of a modification of Lange's[9] method. Lange's original method is as follows:

"Ten grams of the original substance are placed in a large, deep, tubulated retort with ¾ times its weight of pure KOH, and about 30-40 cc. of H_2O. This is then closed with a glass stopper, and heated in an oil bath. The temperature is measured by a thermometer placed in the bath, the bulb being on a level with the bottom of the retort. At about 140°, with considerable foaming, boiling begins. The temperature then rises little by little to about 180°. The heating is continued for about one hour. The foaming is then finished, and the mass falls together in the retort, then melts and finally dries. End of reaction. The retort is now taken from bath, the contents, after cooling to about 80° C., are taken up with hot water and washed carefully, first with repeated washings with hot water, and, finally, into a beaker with cold water. After cooling, the solution is acidified with dilute H_2SO_4, whereupon immediately a thick flocculent precipitate is formed consisting of small particles of cellulose, which had remained suspended in the strong alkali. Upon acidification the cellulose is precipitated out quantitatively. The contents of the beaker are now made slightly alkaline by the careful addition of NaOH, so that all the precipitated substance with the exception of the cellulose goes again into solution. The solution is now filtered with strong suction, through a sieve-like, fine-perforated, platinum cone. The residue left on the filter is washed first with hot and then with cold water, taken from the filter, and digested with alcohol, again filtered, and washed with ether, and finally dried and weighed. By ignition of the residue and subtraction of the weight of the product obtained, the pure cellulose content is obtained." In a later modification Lange[10] substituted a porcelain crucible 65 cm. high for the retort and a centrifugal for suction, thus cutting down the time of operation from six to two and one-half hours.

This method has given widely varying results in the hands of different investigators, and, while it may give comparable results on different substances, slight variations of conditions (temperature and time), when used on the same substance, affect the results obtained to a considerable extent.

In Table I are some of the results obtained by J. J. Frank with the method of Lange on pure cotton (Red Cross surgeon's absorbent cotton):

Table 1.—5 Grame Cotton and 20 Grams KOH.

Time Hours.	Temp.	H_2O Grams.	Yield Per cent.
1	180°	100	92.80
1	180°	100	92.84
1	180°-210°	100	83.80
1	180°	40	91.40
1	180°	40	82.00
1	180°	40	88.20
0.5	210°	100	91.80
1	210°	100	67.80
1	210°	100	67.00
4.5	180°	100	43.32
4.5	180°	100	42.00

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[1] Chem. Zentralblatt, 321 (1857).

[2] De Pflanizenfaser, 27, 28.

[3] Cross and Bevan: Cellulose, 95.

[4] Jour. Chem. Soc., 29, 1119 (1907).

[5] Zeit. physiol. Chem., 14, 217 (1989).

[6] Chem. Ztg., 14, 868, 902 (1890).

[7] Zeit. physiol. Chem., 16, 270 (1891).

[8] Holdefleiss: Landwirtschaftl. Jahrbucher, Suppl., Band (1887).

[9] Zeit. physiol. Chem., 14, 283 (1889); 16, 270 (1891).

[10] Zeit. angew. Chem., 19, 561 (1895).

These results do not meet the broadest analytical requirements and the method as such is apparently useless. The fault obviously lies in the fact that the concentration of caustic potash varies within wide limits, due to the fact that water is being driven off continually. Now if the concentration is kept constant, there is no reason why this method should not give results, and this work was carried on by modifying Lange's method in this respect. This was done by means of a reflux condenser connected to the vessel in which the action takes place.

Pure absorbent (surgeon's) cotton was used entirely in this work, and the method is as follows:

0.5-2.0 grams of the sample were weighed out, the moisture content being previously obtained from a separate sample, and placed in a 500 cc. round-bottom flask (Jena glass). 50 cc. of KOH solution were then added, the flask connected with a reflux condenser, and heated in a paraffin bath to the desired temperature. The temperature of the bath was taken in each case, and was regulated by the height of the flame used; 130°-140° was the highest temperature of the bath which was used on long runs, due to serious bumping at higher temperature. The bath was maintained at that temperature for the time desired. The flask was then allowed to cool to about 70°-80°, and the contents washed into a beaker with distilled water. The cotton wool (which can be gathered together on a glass rod) was then washed with water and removed to a Gooch crucible, where it was washed thoroughly with dilute alkali, water, alcohol and ether. The residue was then dried in a water oven to constant weight.

Serious bumping took place at first, even at 130°-140°, which was overcome, first, by weighing the sample out in as compact a mass as possible, and, secondly, by means of a long glass rod extending down through the condenser to the bottom of the flask and resting on the sample near the centre. This causes the steam evolved to pass up around the outside of the sample instead of being confined under it and thereby causing the bumping.

At the outset a 20 per cent. KOH solution was used in each case, and the time varied from one to 166 hours, the temperature of the bath with a few exceptions being constant at 130°-140°. Moisture was previously determined on a separate sample of cotton and found to be, (1) 3.21 per cent., (2) 3.34 per cent. All results are calculated to air-dry conditions, so that a yield of about 96.7 per cent. means pure cellulose containing 3.3 per cent. water.

On inspection of the results obtained (Table II) it is seen that there is an appreciable drop in the percentage yield for the first 15 hours, but that after that the yield remains practically constant as far as investigated.

Table II.

Time Hours.	Bath temp.	KOH Grams.	H_2O Grams.	Yield Per cent.
1	170°-180°	10	50	96.66
	170°-180°	10	50	96.12
	130°-140°	10	50	96.02
2	170°-180°	10	50	95.02
	170°-180°	10	50	96.06
3	170°-180°	10	50	95.80
	170°-180°	10	50	95.76
4	170°-180°	10	50	95.42
	130°-140°	10	50	95.48
6	170°-180°	10	50	94.92
	130°-140°	10	50	95.00
8	170°-180°	10	50	94.50
	130°-140°	10	50	94.00
	130°-140°	10	40	94.10
12	170°-180°	10	50	93.60
	130°-140°	10	50	93.20
15	130°-140°	10	50	92.70
	130°-140°	10	50	92.60
18	130°-140°	10	50	92.60
20	130°-140°	10	50	92.64
24.25	130°140°	10	50	92.70
37	130°-140°	10	50	92.40
48	130°-140°	10	50	92.02
72	130°-140°	10	50	92.80
92	130°-140°	10	50	92.80
100	130°-140°	10	50	92.54
140	130°-140°	10	50	92.60
166.5	130°-140°	10	50	91.80

Normal cellulose is the basis of fibrous materials generally. Various modifications of it, oxy, hydro and lignocellulose, are associated with and give it chemical activity. All methods of determining fibre content of a substance are based upon the premise that at the end of a certain time the reaction is to be made to stop, and the result at that point determined. If the reaction proceeds beyond that point the results are no longer comparable. On the other hand, the action of caustic potash appears to be divided into two definite stages:

1. The period of first attack in which the superficial oxy and hydrocelluloses are dissolved (first 15 hours for concentration of KOH used).
2. The period in which the caustic potash is in contact with normal cellulose is without appreciable action so far as change in weight is concerned. It is in this period of constant weight that the true cellulose content may be arrived at.

Next a 10 per cent. KOH solution was used in each case and the time varied from 1 to 84 hours. The temperature of bath was kept constant at 130°-140°.

Table III.

Time Hours.	Bath temp.	KOH Grams.	H_2O Grams.	Yield Per cent.
1	130°-140°	5	50	95.30
3	130°-140°	5	50	94.20
6	130°-140°	5	50	92.42
15	133°-140°	5	50	92.50
47	130°-140°	5	50	92.30
47	130°-140°	5	50	92.40
60	130°-140°	5	50	92.40
84.5	130°-140°	5	50	92.64

On inspection of the results obtained (Table III), it is seen that there is an appreciable drop in the percentage yield for the first 4 or 5 hours; but that after that the yield remains practically constant as far as investigated.

It is seen that in each case (20 per cent and 10 per cent. K.O.H.) the percentage yield drops practically to the same value, and then remains constant, the value for the 10 per cent. KOH being very slightly below that of the 20 per cent. KOH. But, however, contrary to what might be expected, the drop to this constant value is much quicker in the case of the 10 per cent. KOH, than in that of the 20 per cent KOH

In view of this fact, the time was next kept constant (3 hours), and the concentration of KOH solution was varied from a 20 per cent. solution to a 1 per cent solution.

Time Hours.	Bath temp.	KOH Grams.	H_2O Grams.	Yield Per cent.
3	130°-140°	10	50	95.80
3	130°-140°	5	50	94.20
3	130°-140°	3.5	50	93.38
3	130°-140°	1.25	50	92.00
3	130°-140°	0.50	50	93.00
3	130°-140°	0.50	50	92.70

Pure water was found to be without appreciable action on cotton, what action there was being due probably to impurities in the glass used.

On inspection of the results obtained (Table IV), it is seen that by decreasing the concentration of the KOH, the percentage yield decreases with a certain degree of regularity as far as investigated.

An explanation of this may lie in the fact that the water is the important factor in the action, the non-celluloses being carried into suspension in the presence of the KOH. In the short runs no appreciable coloration of the solution is noticed, while in the long runs considerable coloration is noticed, this coloration pointing to the probability that decomposition has taken place, although the percentage yield is approximately the same in the short as in the long runs. This observation tends to bear out the explanation offered, the KOH reacting with the non-celluloses after they have been carried into suspension. Also there may be some dependence on the fact that the evolution of steam takes place at a much greater rate in the diluted solution, therefore an increased movement of entire contents of flask.

It is, of course, well known that cotton cellulose is soluble in cuprammonium (Schweitzer's reagent), from which it may be precipitated by acids or salts. In view of what was done with cotton—indicating that it was from 92-93 per cent. normal cellulose—it was desired to get at the changes, if any, involved in the solution of it. There was no reason to suppose that reprecipitated cotton would show any marked changes toward alkali, if it were chemically the same. If not chemically the same it was hoped to show this in the yield after solution.

A strong cuprammonium solution was made up (copper hydroxide was precipitated from a solution of $CuSO_4$, to which was added NH_4Cl). The blue precipitated $Cu(OH)_2$ was then filtered, and dried by means of filter cloth. It was then finally dissolved in NH_4OH (sp. gr. 0.92). Cotton wool was dissolved (apparently) in this solution and after standing, for varied periods of time, was precipitated by means of H_2SO_4. The precipitated substance was then filtered, washed thoroughly, and dried in a water oven, the dried substance being then ground in a mortar to a fine powder, and treated in a similar way to the cotton wool.

Table V. — Cotton Wool Reprecipitated from Schweitzer's Reagent, without Filtering. Temp. of Bath, 130 -140 ; 5 Grams KOH per 50 Grams H O.

Precipitated from Schweitzer's reagent.	Digestion with KOH at constant volume.	
	Time Hours.	Yield Per cent.
After 0 hours	24	80.32
" 0 "	6	76.36
" 4 "	6	32.04
" 15 "	6	42.52
" 18 "	6	31.21
" 24 "	6	15.45
" 5 "	24	19.95
" 6 "	6	29.47
" 13 "	24	30.72
" 15 "	6	21.98
" 15 "	6	52.95
" 30.5 "	24	24.66
" 45 "	6	36.19

The dried substance was ground fine so that it would remain partially in suspension in the KOH solution, thereby alleviating the bumping, usually caused by the gathering of the substance in the bottom of the flask.

In some cases the solution was filtered before precipitation with acid, by means of asbestos in a Buchner funnel. It was thought that, perhaps by filling the pores of the filter up by consecutive filtering of the same solution, a partial separation of cotton which might be in suspension, and cotton which was in true solution, might be effected.

From the results obtained (Table V) it is shown that cotton reprecipitated from Schweitzer's reagent is not the same as before, in regard to its action towards KOH. Other than this no conclusions can be drawn, since the results obtained show very clearly that some other condition or conditions must be regulated before anything definite can be concluded.

A sample of oxycellulose was prepared ($HCl + KClO_3$ in dilute solution at boiling point for one hour), and treated similarly to the reprecipitated cotton wool.

Time Hours.	Bath temp.	KOH Grams.	H_2O Grams.	Yield Per cent.
6	130°-140°	5	50	30.22

This result shows that the substance obtained by the action of $HCl + KClO_3$ on cotton wool (presumably oxycellulose) is not the same as cotton wool in regard to its action with KOH.

Whether cotton cellulose in contact with Schweitzer's reagent in the open air is converted into oxycellulose, the amount depending upon the time of contact, cannot be said, but, from the work done, indications point in this direction.

The general results of this paper are:

1. The fusion method of Lange as originally proposed does not give sufficiently concordant results to be generally useful.

2. Slight variations of time, temperature and concentration of reagents in all other methods so far proposed are accountable for variations of cellulose yield, and, therefore, none of the methods are a true measure of normal non-reactive cellulose, but merely arbitrary approximations.

3. By use of a constant volume of KOH solution at a temperature of 130°-140°, after a certain interval of time, depending upon the conc. of the KOH solution, a constant yield of presumably normal cellulose is obtained from absorbent cotton. By this modification of the fusion method of Lange a criterion for normal cellulose in cotton wool is arrived at.

4. By varying the concentration of the KOH solution the time required to reach this constant yield is varied, the more dilute solution requiring the shorter time within the limits studied.

5. Further experiments will be necessary before one can tell whether this method is applicable to other forms of cellulose than the one studied.

6. Cotton, reprecipitated from Schweitzer's reagent, is changed so that it reacts more readily with caustic potash. The results are very irregular, showing that further study of the reaction is necessary.

7. Surgeon's cotton contains approximately 92.93 per cent. normal cellulose, 4-5 per cent. of cellulose, etc., soluble in KOH, and 3.25 per cent. moisture.—Journal of the Society of Physical Chemistry.

UTILIZATION OF WASTE-SULPHITE-LYE

By R. W. STREHLENERT

Per ton of chemical pulp produced there are, on the average, 10 cbm of waste-lye and these contain 9—13 per cent. of solid substances on the litre. It has long already been found as not economic to attempt to recover these substances by evaporation. The new process is based on the principle of oxidizing the free SO_2 contained in the waste-lye by high pressure and heating to about 170 deg. in the presence of oxygen. At the first experiment a pressure of 20 ko/sqcm and a temperature of 190 deg. C. were employed, and oxygen was forced into the lye; about 90 grammes of solid substances on the litre of waste-lye were precipitated. The heating lasted from 40 minutes to 1 hour. At subsequent experiments air was simply used in place of the compressed oxygen.

The first samples showed a product of a comparatively large percentage of ashes; therefore the waste-lye was later on treated with 1½ to 2 per cent. of sodium sulphate, whereupon the lime was almost immediately precipitated in form of gypsum. After the lignine substance had been precipitated by the above process, the soda salt contained in the same may be washed out, and a final product of a comparatively low percentage of ashes is obtained.

The process is carried out about in the following manner: The warm waste-lye coming from the sulphite digester is mixed with sodium bi-sulphate, the thereby precipitated gypsum is then allowed to settle, whereupon the supernatant solution is conducted into the pressure vessel. The precipitated gypsum is desiccated in a separator and washed. The pressure vessel is then filled to 6/10 with the waste-lye free of lime, closed and heated to a temperature of 100 deg. C. Then air is forced into it up to a pressure of about 10 ko sqcm, and the whole slowly heated to a temperature of about 160 deg. C. Between 160 and 170 deg. C. all free SO_2 is with a certainty converted into SO_3. When the critical temperature has been reached, viz., when the decomposition sets in, the pressure rises so rapidly, that a relief valve in the lid of the vessel must be opened; the greater part of the SO_2 liberated passes off and may be again used for preparing sulphite lye. Before the pressure vessel is opened, the compressed air is allowed to enter into a second vessel, which is used alternately with the former; then the lid of the vessel is removed, the washed out lignine substances are desiccated in a separator and at the same time the salts, soluble in water are washed out. This results in a dryness of about 60 per cent. The dry lignine substance has a thermal value of about 7,000 calories.

With the above described process under the most favorable circumstances 60—90 per cent. of the SO_2 contained in the lye are recovered. The amount of the dry lignine substance obtained from waste-lye for indirectly cooked cellulose is 60—70 grammes on the litre. The ethyl-lye which is distilled off contains above all [illegible] hydrates of carbon and salts soluble cannot be maintained [illegible] as the waste-lye had no value.

Engineer N. Hansson, who had studied the process on the spot, said he thought the results excellent. [illegible] half of what the speaker claimed, were [illegible]. He thought that this utilization of waste-lye [illegible] than the manufacture of spirit. Dr. [illegible] the speaker had thought of utilizing the [illegible] the waste-lye by fermentation. [illegible] as on the one hand the waste-lye must be neutralized before fermentation, and on the other hand, the above process must be carried out with an acid solution; besides the sugars contained in the waste-lye play a very inferior part compared to the fuel. The costs of installing the process are lower than those for the manufacture of spirit from the lye. Lastly, Dr. Sonden pointed out the importance of the process for the prevention of waste water troubles, and the Chairman congratulated Engineer Strehlenert on his invention, which seemed to promise great success for one of the most important branches of industry.—Du Papier Fabrikant.

MR. HASTINGS ENTERTAINS PAPERMEN

Special to Pulp and Paper Magazine.

Niagara Falls, N.Y., June 26, 1913.

Last Saturday President Arthur C. Hastings, of the American Paper & Pulp Association, brought a number of prominent paper men to this city on a tour of inspection of the new Cliff mill. In the party were P. T. Dodge, president, and W. D. Russell, vice-president of the International Paper Company, New York; Harry P. Gould, secretary Gould Paper Co., Lyons Falls, N.Y.; D. M. Anderson, general manager St. Regis Paper Co., Watertown, N.Y.; J. P. C. Cowles, John A. Davis and R. Pagaustecher, New York, and Maurice Hoops, Glens Falls, N.Y.

The visit to the new electrified mill was for the purpose of inspecting the newly installed set of grinders made by the J. M. Voith Engineering Co., of Heidenheim, Germany. These grinders occupy three floors of the mill. The raw wood enters the grinders, is turned into pulp, which in turn is pumped to the paper machines direct. The output of the grinders is 30 tons per day, but the capacity is much greater, and the Cliff Co. may make a surplus for storage. Mr. Hastings states that about a quarter of a million dollars has been invested in the new mill and machinery. It is stated also that the new German machines will save a third in help. After the inspection of the mill the party was escorted through the power houses on this and the Canadian side of the river, and on Sunday a trip of inspection was made through the new million dollar plant now under construction at Thorold, Ont.—Meb.

RIORDON'S

The Riordon Pulp and Paper Company, Limited, are commencing the erection of two additional digesters at Hawkesbury. This makes four added to that plant recently. They have also made a contract for additional power, and will bleach fifty tons of the Hawkesbury sulphite.

The Merritton plant will, it is expected, be in operation by July 15th. The sulphite from that plant has become very popular, and keen demands are heard for the reopening of the plant.

The new 100-ton plant for Lake Temiskaming is to be situated in one of the best natural locations for a pulp mill in Canada. The enormous area and water shed of Lakes Temiskaming, Les Quinze, and Temagami, are all tributary to the proposed location near New Liskeard. It is expected they will also bleach one-half of this output. It will be completed early in 1915.

STONE AS A MATERIAL FOR PRESS ROLLS

By J. A. DeCEW

Many materials have been used in the making of rolls for the presses of papermaking machines. The one most commonly used in this country being carefully selected logs of hardwood. In a country where wood is cheap, there are advantages in using this material, because when the suitable timber can be obtained, it makes it a very cheap and effective roll and serves the purpose fairly well of pressing the water from the sheet.

It is hard to find any material for a purpose such as this, which has not some disadvantages and with the cheapness of wooden rolls, there is the disadvantage that the material wears rapidly compared with other parts and when exposed to uneven pressures will become uneven in its surface. When this happens the water would not be pressed from the paper uniformly, consequently portions will be in some places, wetter than others, and, of course, this condition is fatal to the manufacture of paper uniform in quality, because it must necessary be dried unevenly.

In an endeavor to remedy these difficulties, other materials have been tried, such as iron, brass, hard rubber and stone. When a non-porous material is used, however, which has a smooth polished surface, the tendency is that the sheet of paper under pressure would stick to the top roll, because the surface comes in such intimate contact that no air is left between the sheet and the roll, and it takes a considerable pull to get the paper away. As a result, many breaks occur on the machine when material of this kind is used.

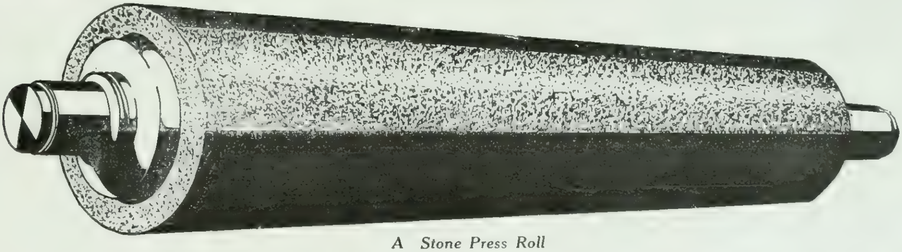
Experience has proven, however, that a material such as stone does not adhere so tenaciously to the wet paper, and that other conditions being equal, it proves the most suitable for this purpose.

There are many kinds of stone, however, as well as there are various kinds of wood, which might be used, but special characteristics are required to give satisfactory results. Naturally any material of coarse granular structure would not be as suitable as something of a fine grain which would maintain a relatively smooth surface; and one very especial requisite is the fact that all ingredients of which the stone is composed, should be of equal hardness.

Different kinds of granite have been used, but granite is a material, the composition of which is quartz, feldspar and mica; in some cases the mica is in very small quantity or replaced by some other material, and, of course, it is evident that any product containing a soft friable material as mica, would not maintain the uniform surface in any roll, as pitting is sure to occur. Moreover, if two materials such as quartz and feldspar, where in the scale of hardness, the former is six and the latter five, it is unreasonable to suppose that these materials would wear down evenly when subjected to any form of erosion. The requirements then would be, that the material suitable for all conditions should have a uniform hardness and this, of course, is very difficult to find where the material would have sufficient hardness and strength, for only material of the hardness of quartz or glass would be suitable.

Owing to the fact that wooden press rolls have been very hard to get in Europe for a long time, efforts were made to discover a stone of suitable character and now for a number of years, press rolls have been made from a special stone discovered in a quarry in Germany. This stone has a fine crystalline character and the ingredients are, quartz and a flinty material, both of the same hardness. The strange thing about the development of the use of these rolls is that at first these were made with a solid steel shaft passing through and this shaft was allowed to come in contact with the interior surface of the stone; as a result when there was any deflection of the sheet or any expansion through overheating, the stones were likely to break and it was some time before this difficulty was overcome.

It was learned, however, that by a special design, in which the stone was held to the shaft by plates pressing on each end, so that there was no interior contact, the rigidity of the roll was maintained with absolutely no danger of breaking, and since that time no breaks have occurred in any of the rolls used.



A Stone Press Roll

Recently some of these rolls have been introduced in the Canadian mills and have given good satisfaction. With high speeds or where the stock is beaten until it is sticky, these rolls are a very great advantage, because they do not pick up the paper, no matter how fast the machine is running or how greasy the stock.

When once installed they will last as long as the paper machine and only under unusual circumstances would they need grinding.

As a result of the uniform pressures on these rolls it is claimed that the felts will last longer and owing to the high pressures which can be used the paper can be made drier than with wooden rolls.

There are also difficulties in the paper mill, due to resinous matters in the stocks, which adheres to a wooden roll and often causes considerable trouble. This is because wood is a more porous material than is necessary, and it is found that resinous matters do not adhere in this way to the right kind of stone material.

Although conditions in America are different from those in Europe in regard to the size of machines, speeds and in some cases, raw material, yet the apparatus which has been found of very general service in one country, should have some considerable advantage under more or less similar conditions, and it seems to be the fact that practically all the new paper machines made in Europe are equipped with stone press rolls in the beginning. As our conditions in America require large productions from the machines it is without doubt desirable that each part should be equipped with the best and most suitable material, so that the difficulty of operation would be reduced to a minimum.

WESTERN FREIGHT RATE

Special to Pulp and Paper Magazine.

Ottawa, Ont., June 26, 1913.

The western freight rate inquiry, in which pulp and paper men are vitally interested with other Canadian shippers, is now in its last stages. Sittings have been in progress for the last two weeks before the Railway Commission, and the end is in sight after almost two years investigation of alleged discrimination between eastern and western shippers in the matter of rates.

During the last week's session some interesting figures in regard to shipments of paper were put in by Mr. W. B. Lanigan, assistant freight traffic manager of the Canadian Pacific. The C. P. R. originally put in an exhibit showing that their rates in the West were lower on nearly all commodities, paper included, than Great Northern ones in the United States. This was attacked by opposing counsel, and Mr. Lanigan during the last session came back again with further comparisons. If the C. P. R. had been allowed to charge the Great Northern rate, for instance, on 13 carloads of paper boxes shipped out of Winnipeg in one year it would have earned $2,072.75 or $95.26 more than the $1,976.49 it did receive. Similar figures were presented covering pulp, wood board and other articles of the kind. Building paper, Mr. Lanigan testified, was classified as hardware and wrapping paper as groceries.

His whole series of comparisons was attacked by counsel for the Winnipeg Board of Trade and the Provinces of Alberta and Saskatchewan, who urged that they did not represent actual traffic movements.

DEMURRAGE HEARINGS

Special to Pulp and Paper Magazine.

Ottawa, Ont., June 26.

Statistics of delays suffered by the Riordon Pulp & Paper Company in the receiving after order, delivery and unloading of cars furnished a feature of the application of Canadian shippers for the adoption of reciprocal or average demurrage before the Railway Commission, of interest to pulp and paper men.

Although the Canadian Pulp and Paper Association was not represented at the hearing, the interests of the industry were looked after by Mr. Frank Hawkins, Secretary of the Canadian Lumbermen's Association, who appeared before the Board with several communications from pulp and paper and lumber firms relative to poor car service by the railways.

Mr. J. E. Walsh, traffic expert for the Canadian Manufacturers' Association, asked for reciprocal demurrage, a system which would fine the railway for delay in delivering cars. He stated the shippers would be willing to let the penalties imposed on the carriers go to the Crown, as the shippers did not want railroad money, but simply improved car service. Shippers, he said, were now no better off than a year ago in spite of the railways' representations. Reciprocal demurrage had worked with success in the United States.

Mr. T. Marshall, of the Toronto Board of Trade, predicted that another period of car congestion was coming in the fall. Shippers would not object to increased demurrage charges if their proposal to penalize the railways was also adopted.

Mr. Frank Hawkins gave a number of instances of delay in lumber shipments en route and in loading, placing, advising, etc. The Canadian Lumbermen's Association wished the adoption of average demurrage, not the reciprocal form, he stated. By average demurrage every car released by the shipper within the free time allowed was credited to him as against every car he delayed in unloading beyond the free time, which was debited. At the end of the month debits and credits were balanced up against each other, and the shipper had to pay up if there were any difference on the wrong side.

He gave statistics covering the shipment of 100 cars in February and March of last spring by the Riordon Pulp & Paper Company from L'Assomption, La Carton Siding, Calumet, Conception, Perley Siding, and St. Faustin, Que. The placing of 20 of these cars had required 1 day and 6½ hours each; the loading of 45 cars had taken 23.02 hours each; lifting of 41 cars, 1 day and 4¾ hours each; en route 3 cars had taken 7 days; advising, 13 cars had taken 15 hours each; placing 3 cars had taken 3 hours each, and unloading 9 cars had required 1 day and 19½ hours each. Of 74 cars asked for but 18 of them had been furnished at one time; at another, 94 cars had been ordered and only 35 given, and at still another period only 8 cars had been furnished out of a total of 94 requested.

The sitting occupied two days at the end of which the matter was taken into consideration by the Board. The railways in reply to the arguments of the shippers advanced statistics of money spent in improving their car service, terminal facilities, etc., and opposed any change in the rules, claiming that as it was a railway could scarcely call its car its own.

INTERNATIONAL PAPER CO.

Special to Pulp and Paper Magazine.

New York, June 25, 1913.

A special news despatch from Boston, Mass., states that free newsprint must inevitably mean the future growth of the International Paper Co.'s production on the Canadian side of the line. "It will be recalled," it says, "that the Taft Commission after months of study and comparison of production costs in the United States and Canada, found that it costs on an average $5.35 per ton more to make newsprint in this country than Canada. Despite that finding, however, the Republicans went ahead and sacrificed the newsprint producers to the exigencies of Canadian reciprocity. The Democrats are simply following in the Republican wake, and securing the good-will of the newspaper publishers by opening American markets to paper makers of all countries on a free trade basis.

The International Paper Co. is fortunate in having in Canada enormous holdings of timber lands. The total including the various Provinces, may be placed at more than 3,000,000 acres. The nucleus of paper-making is already in the company's possession. Further than that, the company owns valuable water power rights on certain Canadian rivers.

The International Paper Co. expects to meet the situation by building mills in Canada by throwing some of its mills into finer papers, and by converting other plants into hydro-electric development.—Meb.

SHOULD NEW BRUNSWICK FORESTS BE THINNED?

By JOHN D. HOWE, ST. JOHN, N.B.

In a paper read before the New Brunswick Natural History Society, Mr. John D. Howe, of St. John, N.B., who has for many years taken an active interest in forestry, urged the making of an experiment in "thinning" to promote growth in the "thicket" spruce forest sof that Province.

Mr. Howe recalled in opening a discussion at the first meeting of the Canadian Forestry Association in 1900, between Sir Henri Joly de Lotbiniere, Dr. Robert Bell, Dr. Wm. Saunders, Hon. W. D. Perley, Mr. Wm. Little and Sir William Hingston. Sir Henri Joly and Sir Wm. Hingston contended that the estimates placed on the growth of spruce were too high, the former saying that in his experience he had not found a more favorable average than one inch in diameter in five or six years. It was also pointed out that while old field spruce grew rapidly they branched out from the bottom and were therefore largely useless as timber trees. Mr. Little pointed out that it was the rate of growth of the whole forest, not of a single tree growing in a garden that was important, and Sir Wm. Hingston said that even in the same acre of forest some trees would grow as much in three years as others in twelve years.

Mr. Howe said he had measured large quantities of spruce, and though people argued that the growth, owing to greater humidity, was greater in New Brunswick than in Quebec, he had not found the average greater than Sir Henri Joly had stated.

This examination disclosed that trees grow, not regularly, but fitfully. Some trees would grow rapidly for twenty years and then scarcely make any progress for another twenty years, and then suddenly break into vigorous growth again, putting on as much wood in two years as they had in the preceding twenty. Different trees of the same species taken from the same tract would show a totally different variation.

After discussing all the possibilities of soil and elevation and climatic conditions, Mr. Howe gave it as his opinion that these could not explain variations so great and so complex. There remained but one other possible cause the variation of light area for the crown of the tree.

People interested in spruce reproduction maintained that the natural spruce forest could be cut over every ten or twenty years, the large trees taken out and the young ones allowed to grow, thus in the end arriving at a perpetual yield.

This system appeared very alluring at first, but the original clear boled trees rapidly disappeared with each cutting. The only trees to take their place were those which grew where clearances had been made sufficient to let the sunlight reach the ground and these trees were usually branched to the ground, producing very rough timber.

Nature's Plan.

Mr. Howe then described the natural growth of a spruce forest after a fire had cleared the ground. The trees came up by millions, ten or twelve seedlings to a square foot. The ground was completely shaded and all other forms of plant life killed. Then the survival-of-the-fittest struggle commenced and the weaker ones died by tens of thousands each year. In a period varying from thirty to sixty years the survivors reached three or four inches in diameter, and were then twelve to eighteen inches apart. The others had died and crumbled to dust. These saplings fifty feet high with no side branches, straight as rushes, with a small plume of foliage at the top, might be called the foundation of the tall timber forest. This was what was known as "thicket growth" throughout the Maritime Provinces.

On examining this stand twenty-five or thirty years later it would be found that the trees now reduced in number to one for each four square feet had increased in size to five or six inches, or at an average rate of one inch in ten or twelve years.

The experiences of a number of investigators were here cited to show that often at this stage, where the forest was very even, the light proved insufficient to support the trees and millions of them died or they became so weakened that they became a prey to insects, fungi or wind. Up to two or three inches in diameter it might be deemed best to leave this small growth to naural thinning, but after reaching this stage if uniformity of size conditions existed suspended growth resulted. Mr. Howe then called attention to some specimen sections of spruce. One section showed that the tree took eighty years to reach five inches, and then it suddenly put on heavy growth and in forty years expanded to sixteen inches. This was not an exceptional case, but such specimens were to be had in large numbers from cut over woods, showing that when the tree received increased sunlight it rapidly put on timber.

Mr. Howe argued that the full growth of foliage was reached at a very early age, and it could be shown that as large an amount of wood material was growing on an acre at an early stage as when larger sizes were reached. What then became of all these years of growth between, say, the three-inch and twelve-inch sizes? Mr. Howe had prepared a table showing what would occur if the growth was not too even. This table indicated a twenty-five per cent. death rate of trees for every inch increase in diameter. This he said would give only sufficient increase to allow expansion and the number of dead trees would show what went to waste while the big trees were reaching maturity.

Was there not here an opportunity to assist nature in hastening the growth of the forest? It would be a most interesting experiment to try the process of thinning on some of these tracts of over three-quarters of a century of suspended growth, working judiciously so as not to destroy the forest fringe or bulwark which protects the trees from being thrown over by the wind. With younger trees larger gains could be made and enormous waste prevented. The present plan of cutting the best trees would soon make large clear timber a thing of the past. It was not the "survival of the fittest" but the survival of the unfit, the forest growing constantly worse from the removal of the best trees. He would be a bold projector to change present methods, but unless this were done from whence would good timber be obtained in a few years?

H. H. EVARARD

Special to Pulp and Paper Magazine.

New York, June 28, 1913.

H. H. Evarard, president of the Detroit Sulphite Pulp & Paper Company, of Detroit, Mich., who met with a severe accident on June 13 while on a tour of the Lake Superior paper mill at Sault Ste. Marie, Ont., by the falling of the stairway leading to the slasher room, succumbed to his injuries on June 18th at his late home, 901 Jefferson avenue, Detroit.

THE WORKING OF WASTE PAPERS

In the Papier Zeitung, in an article on the working of waste papers, it is remarked that in mills where waste papers constitute 60 to 90 per cent. of the furnish special arrangements must be made both for sorting and cleaning. For dealing with large quantities, the writer considers that the spherical boiler is the most suitable means. The sorting-room, with tables covered with wire netting and closed-in sides is situated above the boiler-heads. Instead of tables, the papers may be sorted on travelling bands; every care must be taken to prevent the rubbish sorted out from falling about the room. Generally the papers are sorted more according to color rather than by quality. The spherical rotary boilers used for steeping the papers should be of large size, 10 feet diameter is about the most convenient size, holding two tons or so of paper. The boilers may be old ones since no steam should be used; the boilers are charged dry with as much paper as they can hold, then turned so that the drain cock is in a horizontal position, and cold water is admitted until it runs out of the cock. The use of steam would destroy the size in the papers, it also makes the stuff free so that the new paper manufactured from it feels soft and poor. Old documents and mechanical wood boards have a tendency to swell on steeping, and should not be packed so tightly in the boilers as ordinary papers. If the boiler can be rotated at five revoluions per minute for longer than eight or ten hours, it will pay to fill it up further with old papers after running for three or four hours. A large boiler will require only about 5 h.p. The papers so steeped must be further reduced in the kollergang, but they only require half the time which is necessary for unsteeped papers. Also, since the kollergangs must be situated near the beaters, the previous reduction of the papers in the boilers ensures cleanliness and tidiness in the beater-room itself. The writer does not approve of kneading machines for use in mills working mainly or wholly with old papers.

If the sorting of the paper has not been very thoroughly performed, the kollergang stuff may be sifted through a sieve to remove any unreduced impurities. The beaters must not be furnished too thickly, otherwise the stuff may easily become too greasy. This is particularly liable to occur with hollanders having very large wide rolls, which mill the stuff very quickly. Very little power should be required for the preparation and beating of old papers, as the quality of the stuff must be maintained. On the machines the usual difficulty is to get the water away fast enough. As little water as possible should be used, and the stuff may be slightly warmed, especially for thick sorts; long wires are necessary. The writer prefers a length of 65 feet or more. Four suction boxes are required, two preferably with open water outlet and two connected with an air pump or ejector; three wet presses with accurately fitting rolls and felts not too closely woven. Drying must be particularly gradual on account of the closeness of the sheet and a liberal drying surface must therefore be provided.

The various processes proposed for the removal of printers' ink from papers are only of an experimental nature. On the large scale the papermaker working old printed papers cannot afford any special treatment, but merely runs the stuff longer in the kollergang with more power, and uses a little warm water. Re-manufactured papers look best when supercalendered; m.g. papers show immediately from their appearance the presence of [illegible] papers, machine finished papers do not show it so obviously. Wallpapers are composed very largely of waste papers; spool papers for cotton spinning are composed almost entirely of waste. In the case of wrapping papers, the use of waste paper is not generally legitimate, although certain of the cheaper heavier grades may contain a large amount of waste.—Papier Zeitung.

PRICE BROS. MANAGEMENT CHANGES

Mr. William D. Gregor, general superintendent of the Kenogami Paper Mills, has been appointed mill manager for all of Price Bros.' mills for Kenogami and Jonquiere.

Mr. Gregor came to Canada last fall from the United States where he occupied an important position of general superintendent of the Oxford Paper Company at Rumford Falls, Me. He has been at Kenogami during the completition of construction and opening of paper mills there as general superintendent. On account of the resignation of Mr. Porritt, Mr. Gregor has been appointed mills manager. He started his paper-making career with R. Sullis & Co., Markinch, Fife, Scotland, and went with them through the various departments up to backtending on machine. After three years in Dalmore in a more or less similar capacity he went to the Guardbridge Paper Co., Fife, and enjoyed for over six years, perhaps the most useful experience to be obtained anywhere. Eight years ago he came to the United States, where his career was quite successful, being appointed after a year's service with the Oxford mill at Rumford, Me., under Hugh J. Chisholm, whose energy made that mill second to none, superintendent of the paper manufacturing department. During this period the capacity of that mill was increased by the addition of four paper machines, increasing it from 80 to 155 tons per day of magazine, card, litho, table, writing and high grade book papers. After four years he was advanced to the position of general superintendent of the entire plant, making 90 tons bleached sulphite, 112 tons bleached soda pulp, and 155 tons of paper per day. Mr. Gregor's many friends wish him all success in his new appointment.

W. D. GREGOR

Mr. Edward Flynn, formerly office manager of the Jonquiere Mills, who resigned about two years ago to come to Montreal, has returned to Price Bros. as office manager for the two mills at Kenogami and Jonquiere.

BRITISH TRADE NEWS

Special to Pulp and Paper Magazine.

Carl Maier, of Mannheim, Germany, who trades under the name of Marx Maier (with offices in New York), has opened an office in London. He is well-known in the paper stock line and exports large quantities of rags and rope every year to the States. His son, Max Maier, is in charge of the London branch at present, and in the course of an interview he expressed his opinion on the Canadian trade. Three years ago he was in the Dominion and he greatly admired the construction of the paper mills and said they had splendid facilities, plenty of water and good wood. To the States his firm shipped, on an average, 20,000 tons of rags every year, the most part being cheap stock, some of which was used for making roofing paper, but in Canada the mills needed a higher grade of rags. He did not believe there was much scope for rags in Canada where there was such a great supply of wood pulp. His firm supplied the best linen cuttings as used for banknote paper and other high grades. These were got from the best shirt factories. Next to the linen rags came their cotton rags. They buy rags at the rate of 50 tons a day in all countries. American greenbacks were made from their stuff and the best banknote paper in England. The unfortunate thing was that there was less linen produced now. Linen in general was getting less popular, because everybody was getting used to cotton. New white linen cuttings went up to $216 per ton. Mr. Maier believed there was great scope for rags in England, and, of course, he is setting out to compete with other well-known British paper stock dealers.

The annual meeting of Albert E. Reed & Co., Ltd. (London), was held on June 11 at their offices, 50 Cannon Street, London, and in the absence of Mr. A. E. Reed, who is at present in America on business, one of the directors (Mr. Henry Holloway) presided. Mr. Holloway, in his statement for the year ended March 31, said the net balance available for disposal was £96,537 7s. 11d. The net profits on the year reached £35,364 11s. and the distribution prosed by the directors absorbed £21,830 17s. 7d., which included £5,000 to be carried to the reserve fund, making a total of this fund of £50,000. They proposed to pay a dividend of 7 per cent., as a further dividend, in addition to the 3 per cent. interim dividend already paid, bringing the total dividend for the year to 10 per cent., leaving a sum of £74,706 10s. 4d. to be carried forward to the next account. This is the eighth year that the company has declared a dividend of 10 per cent., and it shows the satisfactory position it was in. Mr. Holloway also referred to the Newfoundland property and said in the near future, when everything was in working order, the company would be enjoying a share of the profits made in Newfoundland. Mr. A. Ralph Reed has been selected as a joint managing director by his father (Mr. A. E. Reed) and the appointment has given much satisfaction amongst the shareholders.

The balance sheet of the Associated Newspapers, Ltd., for the year ending March 31, shows the year's profit as £160,783, compared with £159,520 for the previous year. In consequence of the heavy expenditure on foreign news and the general all round increase in the cost of production of their daily and weekly newspapers, the directors consider these figures satisfactory. After providing for income tax and other payments, there is a balance of £66,223, which, with the sum brought forward last year, leaves £88,056. Out of this £40,000 is transferred to the reserve account and the directors propose to pay a dividend at the rate of 14 per cent. per annum on the deferred shares, making 12 per cent. for the year. During the past year increased supplies of paper have been received by this company from the mills of the Anglo-Newfoundland Development Co., Ltd., in which the company has a large interest. The Newfoundland mills now provide the greater part of the paper supplies of the "Daily Mail," "Evening News" and "Weekly Despatch." The "Evening News" is one of the best journals in London, in fact, in the United Kingdom, and it is a very great honor for Newfoundland to have it to say that it is supplying paper for such an important journal, the circulation of which goes into millions in the week. The reserve fund of the Associated Newspapers, Ltd., now stands at £250,000.

There is still dissatisfaction existing between the employees of the British paper mills and the mill owners over the wages and time questions. Statements have been made within the past week by the general secretary of the National Union of Paper Mill Workers and the general secretary of the Amalgamated Society of Paper Makers. The former concisely sums up the situation. He says the terms embodied in the resolutions passed by the employers at their meeting on May 27 were not accepted by the workers' sub-committee as a satisfactory settlement, and it was clearly stated by them to the employers' special committee that better terms would be demanded where the necessary organization existed. He instanced as one of the reasons the continued unrest, the manifest injustice of one section of the workers drawing "time and half" pay for necessary Saturday afternoon work, and another section having to do equally necessary work alongside them for bare time pay, what was the practical effect of the "time and half" arrangement as per the resolution of the employers on May 27. The same injustice practically applied to the day workers. The reduction in hours had in practically every case resulted in no loss in production, and, as the employers were not losing anything, it was very natural that the workers should expect to have their wages maintained at the old rate, and unless that was granted there was nothing for it but press forward applications for advances in wages to recoup such loss. Should these advances not be granted there are sure to be more strikes.

Comments from time to time in the columns of the Pulp and Paper Magazine have been made on the production of china clay, and it has also been pointed out that Canada's mineral resources might be more keenly studied with a view to providing a substitute for china clay if the actual clay itself does not prove satisfactory. The opportunity at the present age for the Dominion is golden and to improve matters there is a big customer to be found in the States. England cannot turn out the supplies for the whole world, and it seems strange that with all the new companies being formed in London the production is none the greater. The clay is shipped from Devon and Cornwall in small sailing vessels and steamers to Runcorn, Preston, and Manchester, for distribution in the Lancashire and Yorkshire paper mills. In addition to the quantities shipped to Manchester in bulk for home consumption, clay packed in casks is brought there by coasting vessels for transhipment to the lines of steamers running to Canadian and North American ports. A very large quantity of the clay is used in the States by the papermakers and a regular service of steamers from Fowly, in Cornwall, to Portland, Maine, has resulted in a diminution of the quality that was formerly conveyed to Manchester and Liverpool for transhipment.

Amber size for paper making (with which the well-known name of Fox, Stockell & Co., London, is associated) has been prominently before the Royal Courts of Justice. An ex-employee of the Amber Size & Chemical Co., named Gustav M. Menzel, who had obtained some of the secrets in the manufacturing process during his period of employment, was ordered by Judge Astbury to refrain "from using the whole or any material part of the company's secret method. . . . And from disclosing to any other person, company or firm any information" in regard to the size. It appears that after Menzel left his employment he joined another company and they started making size in a factory specially erected for the purpose. Judge Astbury said he had evidence before him that amber size was a great success in the market and that the makers made more of it than most of the other makers put together. He directed also that Menzel should pay the costs of the action.

The Government returns for May show that the United Kingdom has had a very prosperous spell of trade, the figures being as follows:

Imports of paper, boards, etc., £624,356; last year, £599,647.

Exports of paper, boards, etc., £324,759; last year, £298,717.

Re-exports of paper, boards, etc., £19,147; last year, £19,985.

Turning to the figures for January to May we find an increase all round, as follows:

Imports of paper, boards, etc., £3,065,807; last year, £2,849,802.

Exports of paper, boards, etc., £1,594,787; last year, £1,475,067.

Re-exports of paper, boards, etc., £98,277; last year, £84,503.

In the May export trade the British mills shipped £482 worth of writing paper (compared with £1,281 last year) to Canada, and £16,250 worth of printing paper, as against £15,933 last year. Unenumerated papers only reached £778, compared with £1,489 last year. Printings and writings from Newfoundland to the British markets reached £25,292, as against £44,501 in May last, 1912.

The imports of wood pulp for May reached £516,288, compared with £377,049 in May, 1912. In chemical pulps the Scandinavians had most of the trade, with Russia and Germany next. In mechanical, the position is given as follows: Sweden, £31,000 worth (May, last year, £17,687); Norway, £44,914 (last year, £59,933); Canada, £39,973 (last year, £8,604); other countries, £2,650 (last year, £5,410). It is very gratifying to see the large increase in the supplies from Canada. These, of course, are largely due to the long contracts fixed up, and British paper makers and importers would be glad if the Dominion could pay a little more attention to the English markets, to counteract the dealings with Scandinavian sources.

OUTLINES OF STATIONERY TESTING.

A new book off the press on this important phase of paper making is most useful to paper users and paper workers. H. A. Bromley, the author, is assistant examiner of paper to the Royal Stationery Office, London.
As far as possible all purely theoretical consideratio
as well as descriptions, of any but the most satisfact
methods have been eliminated. Charles Griffin &
Exeter Street, Strand, London, Eng. Price 2/6 ne

WRAPPED PAPER

Special to Pulp and Paper Magazine.

Toronto, June 2

At the recent convention of Canadian Bread
Cake Manufacturers' Association, held in Toronto, o
three hundred delegates were in attendance. One of
live issues discussed was the wrapping of bread.
first plant in Canada to wrap bread by machiner
the Speirs-Parnell Baking Co., of Winnipeg, altho
several bakers are wrapping a part of their output
hand, using hand sealers in a number of instances.

Edward Parnell managing director of the compa
read an interesting paper before the gathering on
bread wrapping question. He said that, for abou
year, they had been wrapping the pound loaf, and
popular had it become, that the one-third of the t
output of the plant was now in package form. T
had been able to wrap as many as 25,000 loaves fo
day's output with one machine in charge of one
and two boys, and had got the cost down, includ
paper, to a shade below one-fifth of a cent per l
Previous to the installation of the machine wrapp
by hand, with wax paper, had cost five-eighths of a
per loaf. Later, this had been reduced by about
half by the use of hand sealers, but the machine
already mentioned, had brought the expense down
shade below one-fifth of a cent per loaf.

In answer to the question regarding what kind
paper produces the best results, Mr. Parnell said
matter of difference in costs came up. For insta
there had been some talk of using ordinary papers,
glassine and wax, the first two costing much less t
wax paper. "I may say," added Mr. Parnell, "
we have tried them all, and have come to the conclus
after careful demonstration, that wax paper is muc
be preferred. In my opinion it produces a nicer
pearing, finished parcel. It keeps the bread very m
moister and better, and will hold the weight of the
for a much longer period. So much so is this the
that you can weigh the dough at least one-half ou
lighter than you can for ordinary papers, and if
go into figures, you will find that this difference
more than make up the ordinary cost. It fact, we
that it will pay for the paper. This, I may say,
been the experience of others at the convention."

"Can you wrap all your output" was another q
tion asked Mr. Parnell.

"I would say yes, in theory," he replied, "bu
practice it is impossible. In this country we mak
large number of kinds of bread, both in shape and
So far wrapping machines have only developed
shape of bread as being wrapped satisfactorily.
justments may be made in the machine which will
crease or decrease the size of the loaf that it will w
but even with this, there will be serious difficul
arising, as the loaf, whether larger or smaller, w
require a different size of paper; otherwise there w
be a great waste and much difficulty in getting i
seal properly, owing to too much or too little pa
However, even if this could be done look at the o
different shapes, which it would be impossible fo
machine, owing to inequalities in the loaf, to w
therefore, this would have to be done by hand.
here the cost comes in again. I would submit that
only way you could wrap all your product satisfacto

to all concerned, would be to limit your output to three or four different kinds of loaves, and have a machine for each kind and then it would be quite practicable.

"I am a firm believer," remarked Mr. Parnell, in conclusion, "that the wrapped loaf has come to stay and the quicker we, as bread manufacturers, realize this, the better for all concerned, as it will come with far better grace than waiting until the authorities force us by legislation. I am further convinced that the consuming public are fully alive to the situation and fully appreciate any efforts on our part in this direction."

Ex-Ald. Z. Hilton, of Toronto, President of the Association, stated that his firm had some time ago started to wrap their twelve-ounce loaf, and the public liked the wrapped bread so much the demand for this particular kind of a loaf had increased one hundred per cent.

Mr. Parnell added that the rule of his company was that no bread, under any circumstances, should be wrapped until it had been at least two hours out of the oven. The oven heat must first be off the bread and the loaf properly "set."

Mark Bredin, of Toronto, general manager of the Canada Bread Co., which has large plants in Toronto, Montreal, and Winnipeg, said that, in his opinion, the wrapped loaf was forcing its way to the front and the people were in favor of sealed bread. He had been told by Dr. Hastings, Medical Health Officer, of Toronto, that as soon as machines were a little more perfected, he (Dr. Hastings) would issue an order that all bread would have to be wrapped. Mr. Bredin advised the bakers to get ready for such a move. The Canada Bread Co. have placed an order with the Holden-Morgan Co., 50 Pearl Street, Toronto, for six bread-wrapping machines, which that company is placing on the market. The Holden-Morgan Co. gave several demonstrations of their machine before the bakers, and the speed is about fifty loaves per minute. Any kind of paper can be used, the machine being fed from a roll the same as a perfecting printing press. Several paper mills have made up different kinds of paper for use in this machine, costing all the way from three cents to sixteen cents per pound. The baker can use whatever kind he chooses and there is no waste. The British-American Wax Paper Co., Toronto, of which H. B. Hart is manager, report that the demand for wax paper for bread-wrapping purposes is so great that they are working their plant night and day. Calgary, a few months ago, passed a by-law that all bread in that city must be wrapped and the law is being rigidly enforced, although the bakers think it is a hardship to be compelled to enclose every kind of a loaf, which is almost impossible, except by hand, as pointed out by Mr. Parnell. The Coleman Baking Co. is the first institution in Toronto to install a bread-wrapping machine, but the Canada Bread Co. will soon follow. The Interlake Tissue Mills, of Thorold, have made some paper for bread-wrapping purposes. A. M. Huestis, Toronto, is also handling glassine, grease proof, and other lines of paper for bread wrapping.

SLACK EDGES OF THE PAPER-WEBS

When dealing with rolls of paper, either on the super-calander or in making coated or gummed paper, it will be frequently observed, that the edges of the web are slack and wavy, even if the middle of the web is drawn as tight as a drum-skin. Such paper will produce creases in the super-calander and when liquids are applied, these will not be evenly distributed. In super-calandering the trouble may be avoided by sending the web, instead of in the usual succession, in the manner shown in Fig. 1 over the rolls. A brake is then applied to the roll 0 or it remains altogether stationary. The web is carried from the roll 0 first over the rolls 3 and 2 and then passes between the rolls 4 and 5. If the middle of the web has stretched sufficiently along this travel, the paper is carried in the usual manner over the other rolls; otherwise the web is first taken over rolls 7 and 6, so that it receives the last pressure between the rolls 5 and 6.

This is, of course, a make-shift only, which will suffice for the moment; it is apparently more important, that the operator of the paper machine avoids the slack edges from the very first. In the following we shall give the causes for the appearance of such slack edges. On such parts of the wire, which for some reason or other are raised, less pulp will settle, viz., the paper will be thinner at these parts. If such parts are in the middle of the web, they will not be so troublesome as if they are at the edge, as here the paper is no more supported on one side and therefore hangs down. Raised parts in the wire, now, occur frequently along the edge, because the pulp rising on the felt jacket runs off at the side with the spattered water, strikes against the frame of the couch press and then falls on the wire. The pulp then collects at the next roll lying within the wire and there forms a raised part, which will continue along the whole length of the wire.

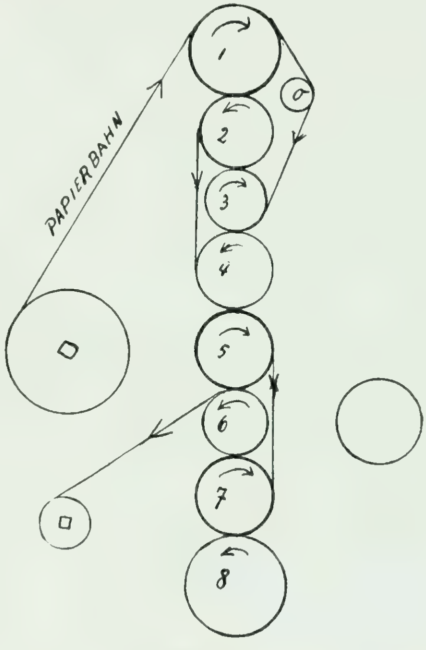


Fig 1.

Slack edges are further produced, when the gutter for conducting the pulp onto the wire is narrower than the width of the web; the pulp, and therefore also the edges of the paper will then be there thinner. This trouble is best remedied according to Fig. 2 (top view of the gutter). Angles made of sheet copper are secured with screws c in such a manner that the pulp will run on to the wire at exactly the same width as the paper web.

Thin edges may further be caused when the last gate is not exactly parallel to the tube-rolls, or when the tube-rolls do not run quite true. Also the shaking may be a cause of the slack edges, namely, if it is not free of jerks, as else the pulp will be washed from the edge towards the middle. Another frequent cause of slack edges may be that the edges of the paper are more severely pressed, in consequence of the rolls sagging; the rolls should therefore always be of a somewhat smaller diameter at their ends than in their middle.

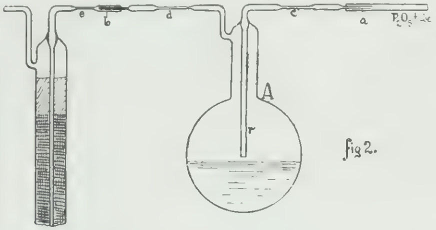


fig 2.

The most frequent cause of the slack edges, however, is the following: When the paper forms creases at any part of the machine, the operator immediately lets a strip of paper run around the paper guide-roll; this may be repeated at several parts of the paper machine and each time the edge is stretched a little more. It is, therefore, quite obvious, that finally the edges of the paper have become too long and slack. A careful operator will see that he can do without running such strips onto the rolls.

PAPER YARN MANUFACTURE

An English patent has been granted to the Aktiengesellschaft fur Garnfabrikation, of Berlin, covering an invention relating to an improved weft yarn from paper strips and to the method of manufacturing the same, the improved yarn being particularly suitable for weaving paper bags, sacks and the like, forming a fabric of such close texture that pulverulent and like substances may be efficiently retained therein.

It has hitherto been usual to manufacture round paper yarn from paper strips by first folding the strip longitudinally and thereupon twisting it tightly by means of a flyer or the like. According to the present invention a weft yarn is produced from a longitudinally folded paper strip by giving only a slight twist thereto, and the present invention relates more particularly to the method of obtaining this slight twist. For this purpose, the longitudinally folded strip is wound into a coil upon a suitable spool or bobbin and then drawn off the spool or bobbin in or substantially in the direction of the axis of the spool or bobbin so that the longitudinally folded paper strip is thereby slightly twisted. The yarn or thread so obtained has the appearance of bast or rushwood, and during the weaving thereof into fabric untwisting is prevented owing to the tension put upon the yarn or thread during the weaving operation.

In the accompanying drawings one method of producing the improved yarn is illustrated by way of example, Fig. 1 being a somewhat diagrammatic view of the apparatus employed, and Fig. 2 being a detail end view showing one construction of the paper guide.

The paper strip is coiled upon a bobbin b which is rotatably mounted in suitable bearings and the paper strip is withdrawn or drawn off the bobbin by a hollow conical or other suitable shaped guide d, whose outlet opening e is smaller than its inlet opening e¹. This guide d being provided internally with projections g (Fig. 2), or with indentations or the like adapted to regulate and facilitate the folding of the strip longitudinally as it passed there through. The longitudinally folded strip is thereupon wound upon a weft spool, being guided thereon by a suitable thread guide f and is thereupon drawn off the weft spool in or substantially in the direction of the axis thereof so as to produce a slightly twisted yarn.

In order to illustrate how the longitudinally folded paper strip is twisted, reference is made to the following example: If a coiled strip is laid upon a horizontal surface and the end of the strip then raised vertically or substantially vertically, it will be found that the strip slightly twists. The same effect takes place on drawing off the longitudinally folded paper strip from the weft spool in the manner hereinbefore described. The yarn or thread so obtained when woven into fabric has the appearance of bast or rushwood inasmuch as it is comparatively flat, thus producing a fabric of close texture. The fabric thus obtained is particularly suitable for the manufacture of paper bags or sacks, and may also be employed for the manufacture of imitation Japanese mats, wall coverings, and the like. It is claimed that the strength of the fabric is much greater than that of the fabric produced from the ordinary twisted paper yarn and the nature of the yarn counteracts folding or curling of the fabric. —World's Paper Trade Review.

FIG. 1.

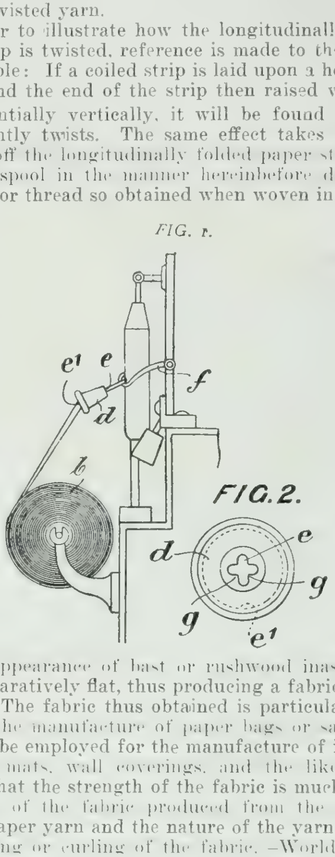


FIG. 2.

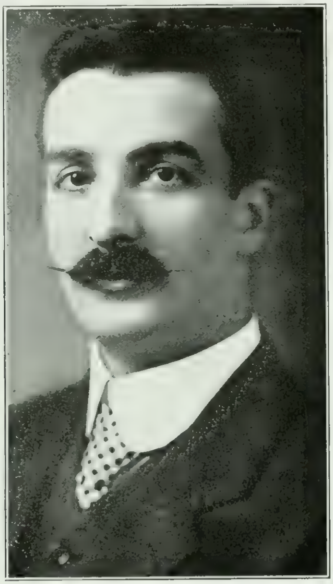
THE WATER SUPPLY IN PAPER MILLS.

A writer in the Papier-Fabrikant points out that in studying the question of mill water supply, it is important to give consideration to its distribution to the various places of consumption. One advantageous system of distributing the water necessitates a large reservoir in as elevated a position as possible and pipes by the directest routes therefrom. In paper mills it is important that the water-pressure, e.g., at the paper machine is always as high as possible, and constant. Variations in the water-pressure give rise, especially in thick papers, to variations in weight, and with shower-pipe dampening of the paper cause such dampening to be irregular. Moreover, the work of the suction boxes is unfavorably influenced by variations of pressure in the water supply. The pressure for the shower-pipes must be as high as possible, for the cleansing action of the water-jet depends very much on the existent pressure of the water.

WHO'S WHO IN THE CANADIAN PAPER INDUSTRY

The Second of a Series of Monthly Articles in The Pulp and Paper Magazine.

Wm. Whyte is one of the newer men in the paper industry of Canada. He was born in Scotland in 1876, and started work as a boy in the Darwen Paper Mills in Lancashire when 14 years of age: in four years moving to Manchester and joining the Chadwick & Taylor Ordsall Hall Paper Hills, where he spent eight years. About this time America tempted him to leave the home country, he came to work for the Great Northern Paper Company at Millinocket, Me., staying only one year to go back to Ed. Lloyd's Pulp Mills at Honefas, Norway. After spending three years there, Mr. Whyte came to Canada with the Belgo-Canadian Pulp & Paper Company, at Shawinigan Falls, where he spent four years. After two years at the North Shore Pulp Company, Clarke City, he went to Murray Bay to build the East Canada Power & Pulp Co., Limited, and when Mr. F. H. Anson organized his Abitibi Pulp & Paper Co. near Iroquois Falls, Ont., Mr. Whyte joined him as general manager.



WILLIAM WHYTE

General Manager of the Abitibi Pulp and Paper Co., Ltd.

We anticipate for Mr. Whyte an exceptional opportunity at Iroquois Falls, and wish him continued success in developing the very fine ground wood mill which has been planned for this district.

McLEAN'S MAN IN TROUBLE IN KALAMAZOO.

Special to Pulp and Paper Magazine.

Chicago, Ill., June 26, 1913.

A more or less embarrassing experience confronted Alexander St. John, said to be a representative of the McLean Publishing Company, of Toronto, Ont., last week at Appleton, Wis. Mr. St. John was suspected of being a spy in the employ of the Kimberly-Clark Company on the operations at the organization of the Union in that city. He joined the Union under the name of Burns, and was employed on time work at the plant of the Kimberly-Clark Co. at Kimberly, Wis., at the time. It was later discovered that he worked at Kimberly under one name and was a union member under another. The union men therefore decided to keep an eye on him, and a couple of the members were instructed to follow him after one of the meetings. They did and discovered he went direct to the home of one of the officials of the Kimberly-Clark Company. This looked to the union as conclusive proof that their suspicions were well founded, and they put it up to Mr. St. John.

He denied the charge, however, and soon showed the union men that they were laboring under a misapprehension when they thought he was "tipping" off union doings to the Kimberly officials. It developed upon investigation that he entered the employ of the company at Kimberly under an assumed name because he did not want it to become known he was seeking material for an extensive article on paper-making.—M.

STRIKE AT BOOTH'S

Special to Pulp and Paper Magazine.

Ottawa, Ont., June 26.

Following the installation of an 8-hour-day, the pulp beaters in the J. R. Booth mills have gone on strike for more money. The former practice was to work two shifts a day, one of eleven and the other of thirteen hours. The men then received a wage of $2.28 per day. When the three-shift system was put in force recently the employes were given a raise in pay, 22½ cents per hour, or a daily wage of $1.80. This did not satisfy the men, who asked for $2, but in reply to this the Booth firm pointed out that they had really put into effect a raise of 3½ per hour. Now that the men have quit, Mr. J. Fred. Booth is authority for the statement that their places will be filled by others. The firm considers it pays higher wages than most paper mills.

Newspaper reports have stated that the water of the Ottawa River is falling so rapidly that lumbermen fear their logs will be hung up in the bush. On investigation your correspondent finds there is little truth in this report. The water in the Ottawa is not lower than usual at this time of year and logs are running freely. On a few of its tributaries, however, the level has fallen so as to inconvenience lumbermen, though the general effect is not great.

The Pulp and Paper Magazine recently printed an interview with the Japanese Consul in Vancouver, in which he stated that he looked for a great trade in pulp wood and lumber from Canada to his country. This should shortly become a reality with efforts which are being put forth by the Canadian Department of Trade and Commerce to put the export and import business on a satisfactory basis. Hon. George E. Foster, Minister of Trade and Commerce, who is now in China, and will visit Japan before he returns home, will be met by Richard Grigg, Commissioner of Trade and Commerce, and will complete arrangements with China and Japan for the facilitating of trade. Last year the Dominion exported to Japan commodities valued at $487,000, and to China $414,000, but the imports were very much larger, a condition of things which is expected to be more evenly balanced in a year or two.

PRODUCTS FROM WOOD WASTE.

The problem of wood waste utilization is an extremely modern one. The components of wood waste are essentially the cellulose and lignin or lignocellulose, water, and, in the case of resinous pines, the oeloresin. These are the sole valuable constituents of wood from the point of view of wood waste utilization, and any method of utilization must consist in the extraction or transformation of these products. The primary marketable products which are obtained from wood waste may be enumerated as follows: !

Paper Pulp.—This is obtained by separating the cellulose from the other constituents of wood. A very good product can be made, but the kind of wood suitable for the extraction of turpentine and rosin is not the kind most suitable for the manufacture of paper pulp, and a large production of either one means a small production or an inferior quality of the other.

Ethyl Olcohol.—This is obtained by decomposition of the lignocellulose by very dilute acids, using high temperature and pressure for a short time. Unselected mill waste is used, and two plants are now in operation with a total production of 5,000 to 10,000 gallons per day.

Acetate of Lime, Wood Alcohol and Charcoal.—These are products of the decomposition of lignocellulose by direct heat, and are exclusively obtained in hardwood distillation. Hardwood gives about 30 per cent. charcoal, 10 gallons wood alcohol per cord, and 200 pounds acetate of lime. Pine wood gives considerably less than half as large yields of wood alcohol and acetate of lime, and gives about 20 per cent. charcoal.

Turpentine, Pine Oil and Rosin.—These come entirely from the oleoresin of the coniferous woods. The oleoresin of may be extracted by solvents and separated into these three constituents, or the wood may be steamed to drive out the volatile portions of the oleoresin, or the wood may be heated, driving off the volatile parts, and melting out or decomposing the rosin. Very good and perfectly marketable grades of both turpentine and rosin are made from wood.

Tar, Tar Oils, Creosote Oils, Pitch, Light Oils, Wood Oils, Gas.—All these products are obtained whenever cellulose or wood is distilled. In the case of hardwood, none of the products has a marketable value with the exception of some light wood oils which are used in shingle stain manufacture and similar industries. The other products find use as fuel at the point of manufacture. In pine wood distillation, on the other hand, all of the products have value and the star, pitch, tar oils, etc., are particularly valuable because, in addition to the decomposition products of the wood itself, they also contain the products of distillation of rosin in the wood.

Cattle Foods.—When the lignocellulose of wood is treated with dilute acid, a very considerable quantity of sugars is formed, and it has been found that by using sawdust a product of good food value can be obtained very cheaply. This is being manufactured regularly in England, and it has now been taken up in the United States.

A great many secondary products are made wholly or entirely from these primary marketable products; for example, acetic acid and hence vinegar are largely made by decomposing acetate of lime with sulphuric acid. Acetone so extensively used in the rubber industry is made by distilling acetate of lime. Camphor has at times been made from turpentine and probably will be whenever the comparative prices of turpentine and camphor warrant it. Rosin oils are made from distillation of rosin, and they enter largely into the manufacture of printing ink and various greases and lubricants. The various tar oils, creosote oils, etc., from resinous woods, contain materials with valuable antiseptic properties and so have found quite extensive use in wood preserving, in preserving paints, as cheap substitutes for linseed oil, in manufacturing disinfectants, etc. Pyroligneous acid from resinous woods also is a disinfectant and it has found a limited use as a general disinfectant for stables and for refuse generally, particularly in communities afflicted by epidemic fevers. Pine oil contains a number of valuable terpene derivatives which have made it a useful ingredient of many liniments and other drugs and a useful source of terpineol and some other products used in the perfume industry.

SPANISH AND LAKE SUPERIOR MERGER.

An impending merger of Spanish River and Lake Superior is current rumor. This is offered as an explanation of the reason why the Spanish stock experienced such a rapid rise last week.

Mr. Garnet P. Grant, president of Spanish River, has been in London for some time, and it is understood that he has been conducting the negotiations on behalf of his company with the English representatives of the Lake Superior Company.

Apparently the business has not reached the stage where an official announcement can be made, but the reported basis of exchange of shares of the present companies for those of the new company are mentioned as follows: For each 100 shares of Spanish River will be given 125 of the new, and for each 100 shares of Lake Superior 150 in the new.

The paid-up capitalization of the two companies is as follows:

	Common.	Preferred.	Bonds.
Lake Superior	$4,000,000	$1,575,000	$3,999,320
Spanish River	3,000,000	3,000,000	2,500,000
Total	$7,000,000	$4,575,000	$6,499,320

The directors of Lake Superior are H. E. Talbot, President; Geo. H. Mead, Vice-President; Capt. D. C. Newton, Vice-President; T. J. Drummond, W. E. Stavert, J. Frater Taylor, and W. K. Wingham.

Those of Spanish River are: E. P. Grant, President; T. H. Watson, Vice-President; T. H. Sheppard, R. A. Lyon, A. H. B. Mackenzie, R L. Innes, and James Bicknell.

EXCURSION TO ANTICOSTI.

The Montreal Board of Trade delegation, including a number of pulp and paper men from Montreal and vicinity, visited the plant of Mr. M. Meunier, the Chocolate King, of Anticosti Island.

The members of the party were all enthusiastic with the prospects of Anticosti and the enormous development which Mr. Meunier has affected there. The pulp wood supplied from these rossing mills goes chiefly to the Northern States through Oswego. They also supply mills on the Great Lakes with their supply of wood.

Many of the visitors considered it most remarkable that such a stupendous enterprise as the development of an island nearly as large as Prince Edward Island should be in the hands of one man, and they consider the attraction of a considerable population as merely a question of time. The climate of the island is more equable than that of the shores of the St. Lawrence either to the north or south, and the soil is most fertile, consisting of a rich black loam overlying a gravelly subsoil.

The excursion left Montreal last Thursday on board the Richelieu and Ontario steamship Saguenay.

WATER POWERS OF BRITISH COLUMBIA.

The Minister of the Department of Lands of British Columbia has just issued his annual report. The report contains results on progress made to that date on investigations of certain water powers including the Columbia, the Kootenay and smaller rivers and though covering only a small section indicates the great power possibilities of this Province. Two sections of the Columbia River were covered (a) from the international boundary to Castlegar and (b) the Big Bend from Kinbasket Lake to Goldstream. There are no water power possibilities under (a) in the main river, but tributaries to this river showed a number of falls of appreciable size. On Cummins Creek which rises in the Rocky Mountains there is an average fall of 180 ft. per mile as far back as the river was followed with indications that 4,300 h.p. could be developed. Goose Grass Creek, rising in the Selkirks, averaged 520 ft. per mile for 2½ miles back from the source. Yellow Creek, rising in the Selkirks, was followed for 9 miles and showed falls as great as 736 ft. with an average of 500 ft. per mile.. Wood River rises in the Rocky Mountains and has a fall of 278 ft. Harvey Creek, rising in the Rockies, averages 245 ft. fall per mile for the first 2½ miles. Boulder Creek showed a fall of 330 ft. during the first mile. Soard Creek has an average fall of 350 ft. for the first mile. Gold Stream, rising in the Selkirks and emptying into the Columbia 55 miles north of Revelstoke, averages 160 ft. fall per mile for some distance back with more falls reported but not reached. Smith Creek rising in the Gold range, showed an average fall of 250 ft. per mile as far as followed.

Kootenay River was investigated from its junction with the Columbia at Castlegar to a point about 6 miles from Nelson covering a distance of 18 miles. The total fall throughout that distance is 330 ft. and the discharges from 10,000 to 12,000 second-feet. The power possibilities include Upper Bonnington Falls, already appropriated by the West Kootenay Power & Light Company, and the City of Nelson, (b) the Lower Bonnington Falls, utilized by the West Kootenay Power & Light Company, (c) a series of falls above Bonnington pool, giving a 77 ft. drop on a length of 3,200 ft. This will develop over 40,000 h.p., (d) a canyon 3¾ miles from the mouth of the river with a 42 ft. head is a distance of 5,300, giving 23,000 h.p. and (e) a site at Granite Bridge 6 miles below Nelson, the power of which has not yet been estimated. None of the tributaries of this river have been investigated.

Pend d'Oreille River only lies in British Columbia for 16¼ miles of its course during which space it has a fall of 423 feet. The discharge is anywhere from 10,000 to 13,000 second-feet. Three places are particularly suited for the development of power (a) at the junction of the Salmon and Pend d'Oreille 48,000 h.p. under a 74-ft. head, (b) at 15 miles, 30,000 h.p. under 47-ft. head, and (c) at 9 miles, 29,500 h.p. under 44-ft. head.

BEAVER BOARD CO.

The Beaver Board Company's proposed plant at Thorold, Ontario, will be commenced at once. The company have purchased 24 acres and will build a mill costing from $300,000 to $400,000. Wood will be bought from different companies and unloaded on the canal as is done by the Ontario Paper Company. They have just closed a contract for 2,800 h.p. with the Niagara Falls Power people for thirty years. The mechanical equipment will require 6,000 h.p. and 500 will be used in the boilers for treating the fibre. The company also have plants at Beaver Falls, N.Y., and at Ottawa, directly on the Ottawa River. They are now planning to erect an additional mill at Edmonds, Washington, a suburb of Seattle on Puget Sound, to cater to the Eastern and Australian trade. The company have recently sold $2,000,000 worth of stock without giving a bonus. For an organization which was only founded seven years ago, their progress has been most remarkable, and the fact that they have been able to sell this large amount of stock, is a fine tribute to their organization and business ability. Mr. W. F. MacGlashan, of Buffalo, is the President, and Mr. H. S. Lewis, of Beaver Falls, is Secretary-Treasurer.

PAPER YARNS.

With reference to the article in our issue of April 1st, on "Paper String," we received the following remarks from Dipl-Ing. A. Brune, in Nestersitz.

The spinning of paper has been tried for over 40 years, and at first paper was stretched over a thin cotton thread and the paper was then twisted over the latter. Later the cotton thread was omitted as a well cooked cellulose, in particularly one cooked slowly, will produce an excellent yarn also without any other addition.

Silvalin yarn is made of pure sulphite pulp, which is divided on the wire into the form of strips and these strips are then spun on the ring-spindle. Kron did not use cotton in spinning, but in weaving the warp was at first made of cotton, while the weft consisted of Silvalin. When such fabrics are washed, the color will partly wash out, but the yarn itself will remain strong; workmen's clothes, made of 60 per cent. cellulose and 40 per cent cotton (weft and warp) have even been washed 14 times, and in the meantime the clothes were worn by fitters. According to Mr. Brune, the paper yarn has a splendid future; the great part will probably be consumed by the bag-making industry, but good experiences have also been made with curtains, blinds, wall coverings, carpets and stair carpets, cords, washing lines, and even transmission ropes made of paper yarns.

GOVERNMENT ACTION ON SULPHITE CLAUSE.

Special to Pulp and Paper Magazine.

Ottawa, Ont., June 25.

That the American Treasury Department does not interpret the proposed enactment of $2 per ton duty on chemical pulp from Canada, as it has been understood here, is the inference drawn by the Dominion Government from communications which have passed between it and that of the United States.

As announced in the last number of the Pulp and Paper Magazine, the matter was brought up in the house of Commons in the closing days of the last session and the Prime Minister then stated that he was in communication with the British Embassy at Washington. Your correspondent hears that through this medium the Government has been in communication with the American Executive with regard to the proposed tariff provision. A definite conclusion has not been reached, but advices are to the effect that the American Treasury Department does not interpret the proposed clause as likely to affect in the manner feared, the importation of pulp from the Canadian Provinces, and that the apprehensions expressed in Parliament have little foundation. A more definite announcement is awaited shortly.

UNITED STATES NOTES

Special to Pulp and Paper Magazine.

The paper mill at Bogalusa, La., will be closed down for sixty days for an additional building to be added. It will take from six weeks to two months to make repairs and additions. The vertical digester for the mill has been ordered from Germany. The improvements will cost about $100,000, and are necessitated by increased business. The mill is now turning out envelopes as well as bags.

Lewis H. Scranton, of New London, Conn., who for a number of years has been representative for Cornell & Ward, New York, and for the past three years, sales manager for the Thames River Specialties Company, of Uncasville, Conn., has accepted a position as general manager of the box board department of the Judd Paper Company, Holyoke, Mass. Mr. Scranton will at once call on his many customers, and shall be glad to continue the pleasant relations of several years.

Representative Stanley, of Kentucky, has introduced a bill in the House appropriating $30,000 to enable the Secretary of Agriculture to conduct experiments to determine the practability of making paper out of corn stalks. The bill provided, however, that the necessary site and building be secured near Henderson, Ky. It probably will not be reported this session.

A small fire at the plant of the Northern Paper Company at Green Bay, Wis., last week caused property loss estimated at between $6,000 and $8,000. The damage was not so much from fire as from water. The fire started in the beater room and was not discovered until the automatic sprinkler system gave the alarm.

The St. John Valley, N.B., pulp wood interests expect much of the railroad to be built across the northern part of the State of Maine, from Centerville, through Presque Isle and Washburn, which will connect the St. John & Quebec railway now building with the Quebec Central, National Transcontinental and International railways.

Winford N. Caldwell, president and general manager of the American Writing Paper Company at Holyoke, Mass., said last week he knew nothing about the latest reports concerning reorganizations of the company. The reports were revived by the sale of American Writing preferred down at 20 on the New York exchange recently after reaching a high level three months ago of 44. More than 4,000 shares are said to have changed hands in the recent declines and people who claimed to be on the inside said it was a sure sign there was something doing in the affairs of the company. Edwin Gould has been in the directorate of the company for several years and it is said that the Gould group has at last secured control of the company, which is sure to result in reorganization of things generally. Local representatives say that retrenchment all along the line has been ordered and it is believed that this order is responsible for most of the recent changes in division management.

Despite the uncertainty in tariff matter, United States interests continue to plan for big developments in the pulp and paper industry on this side of the line. The St. Lawrence Pulp and Lumber Corporation, in which Mr. Whitmer, of Philadelphia, is the largest stockholder, has, it is now announced, begun work on building a new sulphite mill at Campbelltown, which mill will be of 100 tons capacity. The sulphite will be a high grade product and is intended largely for the American market. Another new company in which there are large American interests is the Labrador Pulp and Paper Company. Mr. H. R. Reid, the vice-president of that company, states that as soon as the pulp mill which the company is constructing at Hamilton Inlet is completed, the company will build another at Sandwich Bay of equal capacity, namely, 90,000 tons yearly.

OUTCOME OF THE PAPER SCHEDULE.

Special to Pulp and Paper Magazine.

Washington, June 25, 1913.

The ultimate outcome of the paper schedule now before the Senate continues to be an enigma. Section N as it stands to-day is almost identical with the measure as passed by the House, as far as free print paper is concerned. The plea of John Norris, representing the big newspaper publishers, appears to have greatly frightened all of the Democratic leaders, as the retaliatory duty of $200 per ton, which the Senate Finance Committee had accepted as a modification of the House provision, was stricken out at the last moment. Norris pictured to the Democratic leaders what would happen if Canada, incensed at the placing of this retaliatory duty, should place a complete prohibition on all pulp wood for export into the United States. He stated plainly that such retaliation would be felt keenly in the States. "Canada is our best source of pulp wood," he said. "Cut it all off, and on whom would the burden fall? His denunciation was so great that the leaders squirmed under his forceful remarks, and finally agreed to strike out "Section 2" of the Canadian Reciprocity Act carrying that provision, and throw the whole question into the Senate.

That is the exact status of the paper schedule now. Nobody can guess what will eventually become of it in the Senate, or in the joint conference where the tariff bill will be sent after its passage by the Senate. Some are of the opinion that the retaliatory duty will be affixed again before the act becomes a law, but the majority agree that it is not likely.

Efforts are now being made to abolish the retaliatory duty of $2.00 per ton on chemical pulp, where restrictions are placed on exports of pulp wood, as from Crown Lands of Canada. It is argued that this duty brings no good to anybody, and only serves to keep up the price of chemical pulp to American paper mills.

In discoursing on the subject, one of the Senators says: "Chemical pulp will come in free from Sweden and Norway, as also from public lands in Canada, and the extra duty would apply only to chemical pulp from Canada's Crown Lands, **and this will have no appreciable effect in forcing Canada to remove her export restrictions.**

"Why was this duty on chemical pulp put in the House Bill?" another Senator asked. "Did the chemical pulp manufacturers in America ask for this protection?" He was immediately assured, however, that such was not the case.

It was discovered that China clay had been retained on the dutiable list, though printing paper had been placed on the free list, and that feature was not approved of by the champions of the American paper trade. "If you are going to give us free paper, be consistent," said one, "and give us also free raw material, free chemical pulp, free china clay, and free everything which goes into the manufacture of paper."

China clay, however, remains in the Senate Bill with a duty of $1.25 per ton, and bleaching powder calls for a duty of 1-10c per pound, exactly half in both instances, of the duty carried in the Payne-Aldrich Tariff Act. The Senate Bill also carries duties on alum of 15 per cent. ad valorem, starch of ¾c per pound, Borytes 15 to 20 per centum ad valorem, caustic soda ¼c per pound and sal soda ⅛c per pound.

Several important changes have been made in Schedule M in the Senate Bill, as compared with the House Bill.

Paragraph 331, chiefly, has been rewritten, as follows:

331. Papers commonly known as coping paper, stereotype paper, bibulous paper, tissue paper, potery paper, and all papers not secially provided for in this section, weighing not more than ten pounds per ream of four hundred and eighty by thirty inches, letter coying books, wholly or partly manufactured, crepe paper and filtering paper and articles manufactured from any of the foregoing papers or of which such paper is the component material of chief value, 30 per centum ad valorem.

Paragraph 332 has been rewritten, the chief change being a substitution of a graduated scale from 25 to 50 per centum for a flat 35 per centum ad valorem in the House bill. The new section now reads:

332. Papers, including wrapping paper, with coated surface or surfaces, or with the surface wholly or partly covered or decorated with a design, fancy effect, pattern or character whether produced in the pulp or otherwise, all of the foregoing not specially provided for, whether or not wholly or partly covered with metal or its solution or with gelatin or flock or embossed or printed, except by lithographic parchment papers, and grease proof and imitation parchmont papers, not specially provided for in this section, by whatever name known; bags, envelopes, printed matter other than lithographic, and all other articles composed wholly or in chief value of any of the foregoing papers not specially provided for in this section, and all boxes of paper, papier mache, or wood covered with any of the foregoing paper, 35 per centum ad valorem." Papers wholly or partly covered with metal or its solution or with gelatin or flock, papers with white coated surface or surfaces, hand dipped marbleized paper, and lithographic transfer paper, not printed, 25 per centum ad valorem. All other papers with coated surface or surfaces not specially provided for, whether or not embossed or printed except by lithographic process, 50 per centum ad valorem; uncoated paper, gummed, or with the surface or surfaces wholly or partly decorated or covered with a design, fancy effect, pattern, or character, whether produced in the pulp or otherwise except by lithographic process, cloth-lined or teenforced papers, parchment papers, and grease-proof and imitation parchment papers which have been supercalendered and rendered transparent or partially so, by whatever name known, all other grease-proof and imitation parchment papers, not specially provided for in this section, by whatever name known, bags, envelopes, and all other articles composed wholly or in chief value of any of the foregoing papers, not specially provided for in this section, and all boxes of paper or papier mache or wood covered with any of the foregoing papers or covered or lined with cotton or other vegetable fibre, 35 per centum ad valorem; albuminized or sensitized paper or paper otherwise surface coated for photographic purposes, 25 per centum ad valorem; plain basic papers for albuminizing, sensitizing, baryta coating, or for photographic or solar printing process (25), 15 per centum ad valorem.

Paragraph 333, as passed by the House, provided a flat rate of 20 per centum ad valorem on pictures, calendars, cards, etc. It is now changed by the Senate to read as follows:

333. Pictures, calendars, cards, booklets, labels, flaps, cigar bands, placards, and other articles composed wholly or in chief value of paper lithographically printed in whole or in part from stone gelatin, metal, or other material (except boxes, views of American scenery or objects, and music, and illustrations when forming a part of a periodical or newspaper or of bound or unbound books, accompanying the same, not specially provided for in this section) shall pay duty at the following rates: Labels and flaps printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part of metal leaf, 15 cents per pound; cigar bands of the same number of colors and printings, 20 cents per pound; labels and flaps printed in eight or more colors (bronze printing to be counted as two colors), but not printed in whole or in part of metal leaf, 20 cents per pound; cigar bands of the same number of colors and printings, 25 cents per pound; labels and flaps printed in whole or in part of metal leaf, 35 cents per pound; cigar bands printed in whole or in part of metal leaf, 40 cents per pound; booklets, 7 cents per pound; all other articles not exceeding eight one thousandths of an inch in thickness and less than thirty-five square inches cutting size in dimensions, 6 cents per pound; exceeding eight and not exceeding twenty one-thousandths of an inch in thickness and thirty-five inches and over cutting size in dimension, 8 cents per pound; exceeding twenty one-thousandths of an inch in thickness, 6 cents per pound, providing that in the case of articles hereinbefore specified the thickness which shall determine the rate of duty to be imposed shall be that of the thinnest lithographed material found in the article, but for the purpose of this paragraph the thickness of lithographs mounted or pasted upon paper, cardboard, or other material shall be the combined thickness of the lithograph and the foundation upon which it is mounted or pasted; books of paper or other material for children's use, lithographically printed in whole or in part, not exceeding in weight twenty four ounces each, 4 cents per pound; fashion magazines or periodicals printed in whole or in part by lithographic process or decorated by hand, 6 cents per pound; booklets, wholly or in chief value of paper, decorated in whole or in part by hand or by spraying, whether or not lithographed, 12 cents per pound; decalcomanias in ceramic colors, weighing not over one hundred pounds per thousand sheets, on a basis of twenty by thirty inches in dimensions, 60 cents per pound; weighing over one hundred pounds per thousand sheets on a basis of twenty by thirty inches in dimensions, 15 cents per pound; all other decalcomanias, except toy decalcomanias, 20 cents per pound.

In paragraph 337 this change was made: "Books of all kinds, bound or unbound, not specially provided for, 15 per centum ad valorem." American views, by whatever process known, have been changed from a rate of 45 per centum to 25 per centum ad valorem.

Paragraph 340, a new section, has been written as follows:

340. Papers or cardboard, cut, die cut, or stamped into designs or shapes, such as initials, monograms, lace borders, or other forms, and all post cards, plain, decorated, embossed, or printed, except by lithographic process, and all papers and manufactures of paper or of which paper is the component material of chief value, not specially provided for this section, 25 per centum ad valorem.

The other remaining paragraphs that witnessed slight changes were: (Changes noted in Caps.)

328. Sheathing paper, PULPBOARD IN ROLLS, NOT LAMINATED, and roofing felt, 5 per centum ad valorem.

330. Printing paper (other than paper commercially known as handmade or machine handmade paper, japan paper, and imitation japan paper by whatever name known), unsized, sized or glued, suitable for the printing of books and newspapers, but not for covers or bindings, not specially provided for in this section, valued above 2½ cents per pound, 12 per centum ad valorem: Provided, however, that is any country, dependency, province, or other sub-division of government shall impose any export duty, export license fee, or other charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp there shall be imposed upon printing paper, valued above 2½ cents per pound, when imported either directly or indirectly from such country, dependency, province, or other sub-division of government, an additional duty equal to the amount of (such) THE HIGHEST export duty or other export charge imposed by such country, dependency, province, or other sub-division of government, upon EITHER printing paper, or upon an amount of wood pulp, or wood for use in the manufacture of wood pulp necessary to manufacture such printing paper.

Paragraphs 329, 334, 335, 336 and 339 remain unchanged.

In the Senate bill all text books used in schools and other educational institutions have been transferred to the free list, as also paper twine for binding wool.

In the free list the chief change is in paragraph 651, which now embraces rag pulp as well as chemical and mechanical pulp. In paragraph 571 hemp and flax suitable for paper making have been inserted, but no changes were noted in paragraphs 572, 573 and 590.

Paragraphs 571 and 651, as revised, now read:

571. Paper stock, crude, of every description, including all grasses, fibres, rags, waste, including jute, HEMP AND FLAX, waste shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for in this section, including old gunny cloth and old gunny bags (used chiefly) SUITABLE for paper making.

651. Mechanically ground wood pulp, chemical wood pulp, unbleached or bleached AND RAG PULP; provided, that if any country, dependency, province, or other sub-division of government, shall impose an export duty or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge, or license fee, or otherwise) upon printing paper, RAG PULP, mechanically ground wood pulp, the amount manufactured of wood pulp, the amount of such export duty or other export charge upon an equal amount of RAG PULP, mechanically ground wood pulp, or chemical wood pulp, or upon an amount of wood for use in the manufacture of wood pulp necessary to manufacture such chemical wood pulp, or upon an amount of printing paper ordinarily manufactured from such wood pulp, shall be imposed as a duty upon chemical wood pulp when imported directly or indirectly from such country, dependency, province, or other subdivision of government; and if any country ,dependency, province or other sub-division of government.

ORGANIZATION.

The Paper Trade Journal, of New York, has the following very timely words on "Organization," suggested at the meeting of the Miami Valley Paper Manufacturers' Association recently held:

"The advantage of standing together, for commercial purposes, is as fully recognized as team play is in baseball and polo. The individual player may be strong and skilful, but these qualities are of minor account when pitted against well constructed team play.

"What has made the Miami Valley a great paper manufacturing centre, and caused its reputation to spread to distant parts of the world has not been the exceptional value or quality of the product of any one mill. It has been due to the fact that there has been a number of mills in close community turning out much the same class of goods, each of which, by reason of association, was enabled to see what the other was doing and how it was done.

"Naturally, there was keen rivalry between them all, and as the trade secrets of each were open ones, for all intents and purposes, there was little excuse for any one producer falling much below the level of another's reputation. Natural and other advantages were quite evenly distributed.

"When one mill made a hit somewhere in the worldwide market attention was directed to the district from which the product originated, and the success of one producer influenced trade in the direction of another until the entire group of mills profited each by the other, and the business of the valley grew and prospered.

"But what has helped considerably in this direction has been the friendly spirit between all the paper manufacturers of the district. They are business rivals, of course, but this rivalry serves but to stimulate trade, and the friendship beneath it makes possible the team play to which is due much, if not all, of the general reputation and success of the Miami Valley mills.

"In a word, the secret of the success of the Miami Valley to-day, which has endowed it with great industrial wealth and which enabled it to shake off over night the effects of a terrible disaster, has been that the men of the valley were united."

NEW INCORPORATIONS.

The following companies have been incorporated:

S. B. Foote & Co., Ltd., Montreal Que. To carry on general advertising, printing, publishing and engraving business.

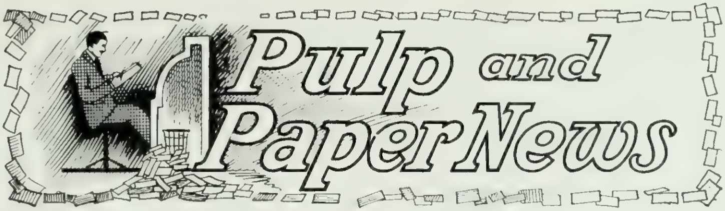
C. H. Swift & Sons, Ltd., Sherbrooke, Que. Dealers in logs, lumber, pulp, pulp wood, paper and all forest products. C. H. Swift, Utica, N.Y.; A. C. Bissell, E. H. May, and F. P. Houlahan, incorporators.

Montreal Daily Mail Publishing Co., Montreal, Que. To publish newspapers and periodicals of all kinds.

Printers, Limited, Montreal, Que. M. A. Phelan, chief incorporator.

Bonne Bay, Limited, Montreal, Que. Lumber, timber and pulp wood business.

Northern Ontario Lumber Company, Toronto, Ont. Samuel Dunlop, R. J. Hickson, F. W. Lowes, A. Wellwood, W. T. Standish, incorporators.



W. F. Robinson, who is the manager of the London, England, office of the Laurentide Paper Co., is spending a few days in Canada on business.

A. E. Millington, of the Ocean Falls Pulp Co., Ocean Falls, B.C., which company is now in liquidation owing to legal troubles, has returned to Toronto.

E. S. Munroe, of the Wilson, Munroe Co., Toronto, has returned from an extended business trip throughout the Prairie Provinces.

The Canadian Boving Co. have changed their name to the Boving Co. of Canada, with a capital of one million dollars. They will erect a large plant for the manufacture in Canada of all kinds of paper mill machinery.

The steamer Port Colborne sailed from Dalhousie, N.B., with a cargo of pulp wood for Niagara. This is the first shipment to go from that port via the St. Lawrence River and the lakes route.

The McArthur limits in the District of Montcalm on the Gatineau and Ottawa Rivers of 400 square miles, are offered for sale; also limits on the River Alex, near Lake St. John. Peter Ryan, of Toronto, is the auctioneer for the sale, which will be held on October 1st.

Rous & Mann, Limited, Toronto, have been incorporated with a share capital of $100,000, to carry on the business of printers, lithographers, stereotypers, bookbinders, paperbox manufacturers, stationers and publishers.

All the saw mills of St. John, employing 900 men, paid off their hands and closed their mills rather than grant a demand of 25 cents a day increase asked by the men. The men had decided to strike, but the lock-out saved them the trouble.

A sad accident occurred at St. Joseph, opposite Quebec City, when in a dreadful windstorm the roof of Edouard Ruel's box factory was carried away and fell on the house of J. B. Lemieux, which was wrecked. Mrs. Lemieux was killed and three daughters had close calls.

Harry Bennett, foreman engineer of C. F. Hardy, and formerly of Price & Co., recently having finished his work there is returning to the staff of G. F. Hardy, of New York. Mr. Bennett a few months ago married a relative of George Chahoon, of the Laurentide Co., and will now settle in New York City.

The Interlake Tissue Mills, of Merritton, Ont., have made several carloads of tissue paper of fifteen and seventeen-pound weight for shipment to British Columbia, where it will be used for packing green fruit grown in the Oganagan Valley. The Interlake Mills are specializing on a number of other lines with much success.

The new paper box factory of Morency & Grenier, on St. Matthias Street, Quebec, has been completed. It is 140 feet long, 45 wide and three storeys high. The plant has a capacity of 25,000 boxes a day, which are turned out principally for shoe manufacturers. The company are putting on the market a neat folding box with a handle which can be used for different purposes.

T. E. Christopher, formerly with the Rhinelander Paper Co. and the Penobscot Paper Co. has been appointed agent of the Spanish River Pulp & Paper Co. at Espanola. Wm. Hurlbut, who has been filling that post for some time, has been transferred to the head offices in Toronto as assistant to John G. Sutherland, sales and traffic manager of the company.

The proposed sulphite mill of Warren Curtis, Jr., Ontario, in connection with the Ontario Pulp Co., is as announced cancelled on account of the sulphite conditions in Canada. It is remarked, however, that Warren Curtis, under long term contracts is arranging with the purpose of erecting a seventy-five ton mill on the St. Lawrence instead of building a mill of their own.

The Nestor Falls Timber Slide and Improvement Co. has been granted a charter with a capital of $30,000 and head office at Kenora, to construct dams and timber slides at Nestor Falls, Height of Land Lake, and the waterways in and between these points, in the District of Kenora, and to levy and collect tolls therefor. The incorporators are J. W. Short, C. J. Short, M. Short, H. A. C. Machin, and M. A. Ap'John, all of Kenora.

Mr. William Price, president and general manager of Price Bros., Ltd., G. H. Thompson, H. A. Price, J. M. McCarthy, all of the firm of Price Bros & Co., are directors and incorporators of the newly organized Rimouski Brick & Terra Cotta Co., Ltd. They will manufacture pressed brick, natural brick, terra cotta, tiles, etc., near Rimouski, where Price Bros. & Co. have a groundwood pulp mill.

The Riordon Pulp & Paper Co. have declared a quarterly dividend of one and three-quarters per cent. on the preferred stock of the company, being at the rate of seven per cent. per annum. Smart-Woods, Limited, have also just declared a quarterly dividend of one and three-quarters per cent. on the preferred stock of the company and a quarterly one and one-quarter per cent. common stock dividend.

Tenders have been called for the first three miles of the new Welland Canal, starting from the Lake Ontario end. The tenders will be opened on July 17th, and it is expected that construction work will begin in August. The total cost of the new waterway is estimated at $55,000,000. The pulp and paper mills along the old canal were shut down for about a day last week owing to four gates being carried away by the steamer Porter at Lock No. 1 at Port Dalhousie.

E. W. Bonfeild, of the Dryden Timber & Power Co., Dryden, Ontario, and Mr. Lockhart, of the Brompton Pulp & Paper Co., East Angus, Quebec, were among those from Canada who attended the annual outing of the Miami Valley Paper Manufacturers' Association, which was held on June 11 at Chataucqua grounds, near Franklin, Ohio, when over three hundred persons identified with the paper trade were present and spent a most enjoyable time.

The forest fires which have been raging recently in the Cobalt district, are reported to be somewhat easier. Not since the fire of 1911 has such a disastrous fire swept the north country. Not only is Charlton affected, but practically every other township in the district where slashings have been made. In addition to farmers' homes, many sawmills and lumber camps have been wiped out. The large saw and planing mill of the Northern Ontario Lumber Co., on the shores of Long Lake, was totally destroyed by fire.

Vice-President T. H. Watson, and Directors R. A. Lyon, T. Albert Brown and R. S. Waldie, of the Toronto Paper Manufacturing Co., paid a visit to the plant at Cornwall last week to inspect the improvements that are being made to the mills. Owing to the delay in getting brick, steel, etc., the department for the sulphite bleaching department, has not been progressing as rapidly as expected. The sulphite capacity has recently been doubled. A loft will shortly be installed for making loft-dried writing papers.

The Belgo-Canadian Pulp & Paper Co., Limited, are installing crystalline stone press rolls on all their paper machines supplied by Process Engineers, Ltd., of Montreal. It is understood that ground is being broken for their new sulphite mill, and that when this is completed an additional new machine will be added. They have also just completed the installation of an Erfurt sizing process for the entire mill. Mr. Best, engineer in charge of the installation, reports that everything is working nicely and that enormous savings are being affected. This was also supplied by Process Engineers, Ltd., who control the patents.

Mr. Harry Bennett, who for the past two years has been engineer on construction at Messrs. Price Bros., Ltd., has recently completed his work and tendered his resignation to the firm. He is returning to the New York office of George F. Hardy, with whom he was formerly associated. Mr. Bennett is a graduate of Princeton University of the class of 1907. He spent three years with the Laurentide Co., Ltd., and then joined the staff of George F. Hardy. He had charge of the construction of the Kenogami mills as Mr. Hardy's representative, and the first of this year went with Price Bros. as their engineer. He now returns to Mr. Hardy's staff.

The Process Engineers, Limited, of Montreal, last week completed the installation of the Erfurt sizing process at the Belgo-Canadian Pulp & Paper Company's mill at Shawinigan Falls. Mr. J. A. DeCew, president of the company, states, that he has already a large number of contracts ahead which he has been unable to install owing to the enormous demand for the process. Mr. Best, engineer in charge of the erection of this sizing process, will spend a few weeks at the Belgo plant in charge of the initial operation of the system. They expect to save in the vicinity of 40 per cent. on sizing costs. Howard Smith Paper Mills have also purchased a system which will be installed immediately.

W. M. Loveland, secretary of the Kalamazoo Paper Co., Kalamazoo, Mich., spent a few days in Toronto last week. He is a director of the Provincial Paper Mills Co., which was incorporated a few weeks ago with [illegible] capital of five million dollars. It is understood that as soon as certain preliminaries are arranged a meeting of the newly organized company. [illegible] the St. Lawrence Paper Mills Co. and [illegible] Paper & Coating Mills Co. will [illegible] The new mill [illegible] Provincial Paper Mills at Thorold, which has a 140-inch machine, started operations this week and is turning out a fine sheet of paper. Bond, writing and special lines will be produced in the new mill.

Mr. Arthur S. Herbert has resigned his position as general manager of the Siemens Co. of Canada, and has been appointed general manager of the branch offices of the Siemens Co. in Australia. Mr. Herbert is now in England, but will return to Canada for a few weeks early next month, sailing for Australia from Vancouver about the end of August. He will be succeeded in Canada by Mr. C. A. Ablett, whose name has been closely associated with the electrification of the rolling mills in Europe during the past few years, and who recently made a brief investigation of the position of the large steel works of Canada with regard to electric drive.

The Spanish River Pulp & Paper Co. now have nine grinders running at Sturgeon Falls, and expect to have the remaining three in operation this week, making an output of sixty tons of ground wood per day. There has been unexpected delay in starting the two additional paper machines at Espanola owing to a carload of machinery containing the Ferguson drives—quarter twist belt—not arriving. Plans are under way to install six new grinders at Espanola, which will give the company thirty in all, or an output of about 170 tons of ground wood per day. Owing to the increase in the number of hands at the paper mill, by reason of the two machines added, the company are planning to erect twenty-five more workmen's houses. These will be modern in every respect having electric light, bathrooms, etc., and will equal the class of dwellings already in existence. The large brick hotel, which was put up by the company about a year and a half ago, has been found inadequate to meet the demands of the traveling public and a big three-storey addition will be built shortly, the plans now being under way.

The Canadian Press Association, which met recently in Toronto, has appointed John M. Imrie as permanent secretary to the organization. Mr. Imrie will in future devote all his time to the work, instead of only half-time, as previously. It is proposed to divide the present and future work of the Association into departments, and the Paper Department will compile statistics showing the capacity of the various mills on each size of machine in their respective equipments and also statistics showing the news print requirements of the daily newspapers throughout Canada. The publication of these figures, and changes as they take place, will show members what mills are best equipped for the handling of their respective orders. An official announcement of the Canadian Press Association, just issued, states that one of the officers of the recently organized Canadian Pulp and Paper Association is authority for the statement, that the daily newspapers of Canada could effect a considerable saving in their paper bill through co-operation and more intelligent buying. "This department will make a study of the methods in use in various daily newspaper offices to cut down the paper bill through checking before and after press runs, reducing margins, careful disposition of waste, etc., and report to the members. It will also follow legislation affecting the paper industry in its relations with the newspapers. It will investigate the freight rates on paper and work for the prevention of discriminatory rates. It is known that the freight rates on paper from Canadian mills to certain United States cities are lower than to certain Canadian cities, through which the shipments of paper must pass in order to reach the United States cities."

CANADIAN MARKETS.

Market conditions continue fair. News print is moderately active but on new business prices are a little softer. Orders for book, writing, bond and other lines of paper have fallen off some, but this is naturally expected at this season of the year. The demand for wrapping papers is only fair and prices are being shaded in some instances to secure business. The figure for Kraft has, owing to the amount coming on the local market been cut to such an extent that jobbing houses say Kraft is replacing Manillas and fibres in many instances. Trade is about holding its own with the corresponding month of last year. There is not much doing in ground wood just at present and inquiries have fallen off. The sulphite situation remains about the same and quotations are unchanged. In the rag and paper stock arena there is quietness; soft white shavings and No. 1 book stock are down about five cents, while there has been some reduction in print Manillas, folded news, and ordinary satinets. The paper trade as a whole considers matters as very fair when, taking into account, the condition of the money market and the fact that things at this particular season, with the holidays on hand, are never as active as in the spring and fall.

Quotations, f.o.b. Toronto, are:

Paper.

News (rolls) $42 to $44.
News (sheet) $46 to $50, f.o.b. mill.
Book papers (carload) No. 3, $4 to $4.35.
Book paper (ton lots) No. 3, 4c to 4½c.
Book paper (carload lots) No. 2, 4½c
Book papers (ton lots) No. 2, 4½c to 5¼c.
Book papers (carload) No. 1, 5c to 6c.
Book papers (ton lots) No. 1, 5¼c to 6½c.
Writings, 5c. to 7½c
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.35 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3½c. to 5c.

Pulp.

Ground wood (at mill), $15 to $16.50.
Ground wood, $22 to $24.50, delivered in United States.
Sulphite (unbleached), $45 to $47, delivered in Canada.
Sulphite (unbleached), $46 to $47, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $60 to $62, delivered in United States.

Paper Stock.

No. 1 hard shavings, $1.85.
No. 1 soft white shaving, $1.65.
No. 1 Mixed Shavings, 60c.
White blanks, $1.10.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.50.
No. 1 book stock, 80c.
No. 2 book stock, 55c.
No. 1 manilla envelope cuttings, $1.15.
No. 1 print manilas, 70c.
Folded news, 47½c.
Over issues, 55c.
No. 1 clean mixed paper, 30c to 32½c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.75.
No. 1 white shirt cuttings, $5.
Blue overall cuttings, $3.50 to $3.62½.
Black overall cuttings, $1.65 to $1.75.
Black linings, $1.65 to $1.75.
New light flannelettes, $5.00.
Ordinary satinets, 90c.
Floc. satinets, 95c.

THE BRITISH MARKETS.

(Special to the Pulp and Paper Magazine.)

London, June 23rd, 1913.

The British paper industry is at the present moment suffering from a shortness of orders, and some of the mills are not working at full capacity. It is reported that in a few small mills the machines are idle a couple of days in the week—that is where high-grade papers are produced. As a matter of fact there appears to be a general depression in all industrial circles just now in the United Kingdom, and this is attributable to the holidays—which affect new business—and the uncertainty of the money market. In the majority of cases contracts are keeping the mills fairly well going and mill owners are taking advantage of the dullness in trade by enjoying a short respite at the sea side or on the Continent.

In the wood pulp trade importers and agents are busily engaged dealing with the heavy shipments that have commenced to arrive at the various English ports. During the past few weeks the supplies from Canada have come to hand in large quantities, and the Dominion now occupies a respectable position with Sweden and Norway in the returns for mechanical pulp arrivals. Business in mechanical pulp is not to say very brisk. A few sales of a decent character have been closed, but generally speaking sellers are not all satisfied with the present current prices they are compelled to accept. Quotations in London are about as follows:

Pine, 50 per cent. moist (prompt).....	$10.00	to	10.20
Pine, dry, (prompt delivery)........	21.00	to	22.00

From 15 to 20 cents extra is charged for forward delivery.

In the chemical pulp trade there are just at the moment all sorts of rumors current. Some paper makers are said to have got their near future supply as low as $30 from Sweden and from the Swedes comes the news that this price was given only in one or two exceptional cases for long contracts, because the sellers became uneasy. However, on the British side, sulphite easy bleaching has hardened very much in price, whilst sulphite strong quality is to be obtained at a slight reduction. Mostly contract deliveries are arriving and enquiries are being made for next year. Quotations are about as follows:

Bleached sulphite	$51.30	to	$56.00
"News" or strong quality sulphite...	47.50	to	47.80
Unbleached soda (1st quality)	37.00	to	37.50
Unbleached soda (strong)	36.90	to	37.00
Kraft (strong)	37.00	to	37.40

The chemical industry is at present going through an anxious time owing to labor unrest. Bleaching powder stocks have improved and the supply is better at the current quotation of $25.60 (for softwood casks) spot. Soda ash is firm at the usual range as to market and is $26. Rosin and size are in buyers' favor.

The demand for China clay still keeps good and paper makers are asked to pay more on new business. Seventy-seven thousand eight hundred and five tons were exported to the States and continent during May, as compared with 57,955 during May, 1912. Prices for 1914 are predicted to be much higher than the level reached this year. Papermakers plaster, and other loadings, are keeping firm, but after July makers will charge 24 to 30 cents extra for any order given them, the extras to cover the increased railway charges.

All grades of rags are in good demand and prices are stiffening for the best cuttings. Bagging and rope continue dear and the demand good.

Esparto merchants report that the enquiry at this period of the year is considerable and some extensive business has been concluded. Supplies are now arriving with satisfaction from all sources.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR MAY, 1913.

	Quantity	
Bleached sulphite	2,123¼	tons
Unbleached sulphite	46,009¼	tons
Chemical wet	2,170	tons
Mechanical dry	441	tons
Mechanical wet	35,723	tons
Canada	8,060	tons
Newfoundland	3,034	tons

LONDON WEEKLY LETTER.

London, June 13th, 1913.

It has been stated that the market for chemical pulp in Europe is somewhat "easier,'' but from reliable sources I find that there is no indication of weakness in regard to sulphite pulp for business during 1913-1914. Opinions greatly differ in regard to 1915, but it is a fact that the Scandinavian mills will not quote for 1915, a price below what is prevailing to-day. It may be accepted that the opinion of the President of the Swedish Association fairly reflects the unanimous idea of the members of the Association which embraces 92 per cent. of Swedish cellulose makers. They are doing so well that a spirit of independence and "cock-suredness'' is general in Stockholm and Gothenburg, and one leading British agent assured me this week that he had been to Sweden to try to induce his mill to accept a trifle below their quotation for 20,000 tons spread over 1914-15-16-17, but they would not listen to him and said "We feel quite certain we should be making a mistake even if we accepted the order at present prices.'' The order was declined and has since been turned down by another firm who told their London representative that they could not do the business without breaking faith with the Association even if they were disposed to. This means, of course, that at present the members of the Association have a definite understanding which they are in a position to maintain until something happens to weaken the demand.

There are big inquiries about; they are for 1914 and onward and when any of this big business is placed it will have considerable influence on the future. At the moment neither buyer nor seller will give way. Probably early next year something will happen. There is no prospect of any material change in the near future.

NEW YORK MARKETS.

Special to Pulp and Paper Magazine.

New York, June 27, 1913.

Very little, if any, change has developed in the mechanical ground wood market during the past fortnight. Buyers continue to seek additional supplies, and makers are keeping their product on a very firm price basis. Water in the streams and rivers is gradually getting lower, and more and more machines are being forced down. A canvass among the local mill representatives shows that the pulp supply on hand at the consuming points is very light. Such is not the case, however, among the grinders who make pulp for sale only. They report quite heavy stocks on hand, but are inclined to hold for better prices. It is the concensus of opinion that there will be a great scarcity of ground wood pulp this summer, and grinders are looking for premium prices.

The chemical pulp market at present is featureless. Buying is practically at a standstill and the prime movement is against old contract orders. Both domestic and foreign bleached sulphites continue to be maintained on a very firm basis. The available supply is limited and makers in almost every case say that they are well sold out over the next year. Bleached sulphates and kraft pulps also are being firmly maintained, but all brands of unbleached sulphites and easy bleaching pulps are weak and subject to shading on actual immediate business. The majority of the makers both in this country and in Scandinavia are the recipients of innumerable requests to postpone shipments of these grades. This is due chiefly to the poor business of the paper mills which are using the course grades of sulphites.

Waste papers have witnessed another break since our last report. Several of the better grades went off a few points, while commons in some cases went off as much as 100 per cent. Collections have been coming in freely, but mills appear to be sufficiently stocked up to carry on present operations, for this reason the inquiry is very limited. The prime movement is for supplies that go into the manufacture of books and magazines, and even these grades are not moving in very heavy

TENDERS FOR PULPWOOD LIMIT

TENDERS will be received by the undersigned up to and including Friday, the 15th day of August next, for the right to cut pulpwood on a certain area tributary to the Lake of the Woods, in the District of Kenora.

Tenderers shall state the amount they are prepared to pay as bonus in addition to dues of 40c. per cord for Spruce, and 20c. per cord for other pulpwoods, or such other rates as may from time to time be fixed by the Lieutenant-Governor in Council, for the right to operate a pulp mill on or near the area referred to.

Such tenderer shall be required to erect a mill or mills on or near the territory, or in such place as shall be approved by the Lieutenant-Governor in Council, and to manufacture the wood into paper in the Dominion of Canada.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Hnourable the Treasurer of the Province of Ontario for ten per cent. of the amount of their tender; to be forfeited in the event of their not entering into an agreement to carry out conditions, etc.

The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested, etc., apply to the undersigned.

W. H. HEARST,
Minister of Lands, Forests and Mines.

Toronto, Ontario,
May 20th, 1913.

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volume. Supplies are rapidly accumulating, and it is intimated that in some quarters values will go even lower than the present current quotations.

Pulp.

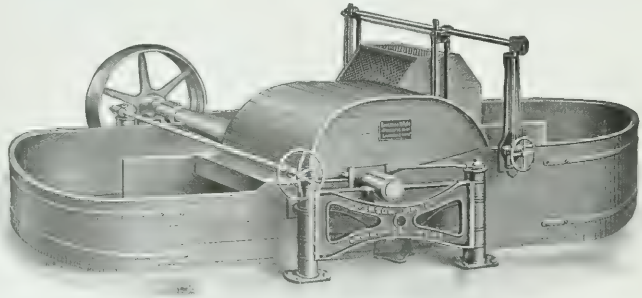
Ground wood, No. 1, $18 to $19 per short ton, f.o.b., mill.
Ground wood, No. 2, $16 to $17 per short ton, f.o.b. mill.
Unbleached sulphite, domestic, 2.15c. to 2.30c. delivered.
Bleached sulphite, domestic, 3c. to 3.15c. delivered.
Unbleached sulph'te, foreign, 2.05c. to 2.30c., ex dock, N.Y.
Bleached sulphite, foreign, 3c. to 3.25c., ex dock, N.Y.
Bleached sulphate, foreign, 2.60c. to 3c., ex dock, N.Y.
Unbleached sulphate, foreign, 1.90c. to 2.10c., ex dock, N.Y.
Soda pulp, bleached, domestic, 2.15c. to 2.35c., delivered.
Kraft pulp, foreign, 2c. to 2.20c., ex dock, N.Y.

Paper.

The local paper industry is very quiet. Sales are limited and confined chiefly to spot shipments. The situation is typical of the average mid-summer business. In no one line is there to be seen any animation. Of course there is a certain amount of business being transacted, but it is chiefly of the small order variety. Consumers are only taking on such quantities as are actually needed to tide them over the summer. Very few concerns, if any, are anticipating their requirements over any great period. The pending tariff changes at Washington is causing general business to be in a state of unrest. No one knows just how the new tariff will effect their business, and in consequence everybody appears to be holding off and awaiting the ultimate results. This likewise affects the paper industry, and the total volume of business now passing makes a very poor showing if compared with the corresponding period of previous years. The one pleasing feature in the industry, however, is the firm basis on which prices are being maintained. Very little competition is being reported. Everybody seems content with the present state of affairs and are keeping their products on as high a basis as possible. Previous range of quotations are therefore repeated as follows:

News, rolls, transient business, $2 to $2.10, f.o.b. mill.
News, rolls, contract renewals, $1.95 to $2.05, f.o.b. mill.
News, sheet, $2.10 to $2.15, f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20, f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90, f.o.b. mill.
Writing paper superfine, 11c. to 13c., delivered east of the Mississippi River.
Writing paper, extra fine, 10½c., delivered east of the Mississippi River.
Writing paper, No. 1, fine, 9c., delivered east of the Mississippi River.
Writing paper, No. 2 fine, 8c., delivered east of the Mississippi River.
Writing paper, engine sized, 4½c. to 8c., delivered east of the Mississippi River.
Bond paper, 6c to 24c., delivered east of Mississippi River.
Linen paper, 7c. to 18c., delivered east of Mississippi River.
Ledger paper, 8c to 30c., delivered east of Mississippi River.
Manila jute, 4¾c. to 5¼c., delivered.
Manila, wood, $2.40 to $2.80, delivered.
Kraft, No. 1, $3.65 to $4.02½, f.o.b. mill.
Kraft, No. 2, $3.27½ to $3.77½, f.o.b. mill.
Screenings, $1.75 to $2.12½, delivered.
Boxboards, news, $30 to $32 per ton, delivered.
Boxboards, chip, $28 to $30 per ton, delivered.
Boxboards, straw, $28 to $29 per ton, delivered.
Wood pulp board, $42.50 to $45 per ton, delivered.
Tissue, white, cylinder, 42½c. to 45c., delivered.
Tissue, fourdrinier, 45c. to 50c., delivered.
Tissue, jute manila, 50c. to 55c., delivered.

Meb.



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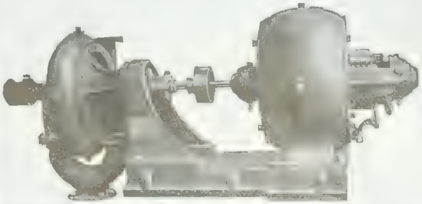

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CANADIAN FORESTRY CONVENTION

Winnipeg, July 7-9, 1913.

The Canadian Forestry Association, which met in Winnipeg, July 7, 8 and 9, is the national organization for creating interest in the preservation of forests on those lands which are not suited to agriculture.

The Association is not composed of a number of cranks and theorists, who desire to preserve trees everywhere and anywhere, regardless of their usefulness or of the character of the land on which they stand. On the contrary, the first principle of the Association is that all the lands of Canada should be examined as quickly as possible, with a view that those lands well suited to farming should be cut over and got under crop as quickly as transportation and market conditions permit; while those lands which are suited only for trees should be, by the skilful use of the axe, devoted to those trees which flourish best in that district. In other words, the motto of the Association is "Every acre to its best use."

It will thus be seen that the objects of the Association are of the most practical, and, viewed in their largest aspects, of a most patriotic character, and not only is the aim of the Association to secure the best results for the present, from our timber lands, but in the long run to see that every part of Canada is kept at its highest productive point. When it is stated that at least 60 per cent. of the area of Canada is suited only to grow trees, and that if such lands are denuded of their timber there will be a serious loss, aside from the stoppage of timber production, to the agricultural, navigation, and power industries of the country, the importance of the subject will be appreciated. In a word, it is pointed out that we may either pursue the course of carelessly allowing our forests to be swept away by fire and improper lumbering methods, with added loss to every other industry of Canada, and, particularly to farming, or we may by protection and by regulating our systems of cutting, keep up a continuous supply of the finest qualities of timber, and at the same time develop to its highest point agriculture on the fertile lands; and also by maintaining the evenness of flow of our streams, protect our increasingly valuable water power projects, and, further, maintain our forest fish, and fur-bearing animals, and provide a most magnificent and most healthful recreation ground for our citizens and for those who come to us from other countries. The value of these different sections of the work is so enormous that what has already been accomplished by the agitation of the Canadian Forestry Association has been of recognized value to Canada.

This is the first time the Convention has been held at Winnipeg, and consequently the subject is looked at from a somewhat different angle than at those conventions held in the timber provinces of Eastern Canada or in British Columbia. Most people imagine that there are practically no forests from the Lake of the Woods to the Rocky Mountains, but the paper of Mr. R. H. Campbell, Dominion Director of Forestry, shows that in the aggregate the timber wealth of Manitoba and two other prairie provinces is immense. This aspect is reinforced by the information given by Mr. W. T. Cox, State Forester for Minnesota, Mr. W. P. Dutton, President of the Great West Lumber Co., Winnipeg; Mr. S. A. Bedford, Deputy Minister of Agriculture for Manitoba, and Mr. F. W. Brodrick, Professor of Forestry, Manitoba Agricultural College.

The great subject of fire protection is dealt with in the papers of Mr. George Bury, Vice-President of the C.P.R.; Mr. Clyde Leavitt, Chief Fire Inspector for the Board of Railway Commissioners for Canada; Mr. H. R. MacMillan, Chief Forester of British Columbia, and Mr. E. H. Finlayson, Inspector of Fire Patrols on Western Railway Lines for the Dominion Forestry Branch. Mr. Norman Ross, Chief of the Tree Planting Division, Dominion Forestry Branch, deals with the work of sending out 25,000,000 seedling trees to plant around homesteads in the three prairie provinces, and the success which has attended this great work for the benefit of Western farmers. Mr. Vere C. Brown, Superintendent of Central Western branches of the Canadian Bank of Commerce, discusses the forestry question from the standpoint of Canada's trade as a whole, showing that forest conservation is a matter of such clear gain, and its neglect bound to result in such immense loss, that a much more vigorous policy than heretofore should be adopted in the Dominion, and every province in Canada. Mr. J. S. Dennis, Assistant to the President, and Chief of the Natural Resources Department of the C. P. R., who has been a persistent advocate of conservation for many years, deals with the subject as it relates also to the trade and transportation of Canada. Mr. G. C. Piche, Chief Forester for the Provinc of Quebec, and Mr. E. J. Zavitz, Provincial Forester for Ontario, in their papers issue a warning to people in Central Canada, who, in their zeal to secure more arable land, may be urged to open up for settlement areas in which the soil is too light for permanent agricultural production. They show the evil results of this policy in older Canada in the way of abandoned farms, and in thousands of acres of worn-out soil, which these provinces must at great expense get back under forest, which is the only form of vegetable life which will grow profitably in such situation. Mr. J. M. Swaine, Assistant Dominion Entomologist for Forest Insects, presents the present situation as regards these insects, which are endangering the forests of Canada, particularly of Northern Quebec and N. W. Ontario, which insects are working their way West into the prairie provinces. Mr. Swaine shows the extent of the danger and what means there are of controlling these pests. Mr. E. T. Allen, Forester of the Western Forestry and Conservation Association, with headquarters at Portland, Oregon, tells of the success of co-operative organizations embracing Government departments and timber owners in fighting fires, and the need of a campaign to arouse the public to the vast amount of wealth involved. Mr. E. A. Sterling, the well-known consulting forest engineer of Philadelphia, represented the American Forestry Association, and spoke on the general progress of conservation work in the United States.

It will thus be seen that a very wide range of subjects is covered in the Convention, and instead of Winnipeg not being interested, the subject is one which concerns all the provinces which are both large consumers and producers of lumber, and where the possibilities both for good and evil in the handling of forest lands are very great.

EDITORIAL COMMENT

A report just issued by the Minister of Public Works on the Ottawa River Storage is most enlightening. The Government is making a large dam on the Quinze Lakes as one of their steps in this Ottawa Storage work. The report shows that the work is most important to all industries on the Ottawa River, and it will open up for development by making the water supply more uniform, a great deal of very valuable manufacturing territory. The report which is well illustrated and very exhaustive, should be of immense interest to paper industries in that section and to those proposing to develop in that district.

W. A. CHARLTON, M.P.
President of the Canadian Forestry Association

The Hon. W. A. Charlton, M.P. for Norfolk, Ont., who is the President of the Canadian Forestry Association, is one of Ontario's leading lumbermen and timber owners. He was interested in lumber many years along with his brother, the late Mr. John Charlton, and since the death of the latter has carried on the business himself. He is also well known for his work in connection with the King Edward and Muskoka Sanitoria for Consumptives, the Finance Board of the Presbyterian Assembly, the Chinese Famine Fund, and other philanthropic objects. He was formerly Speaker of the Ontario Legislature and Minister of Public Works for that province, and is now member of the Dominion House for his native County of Norfolk.

MANITOBA A FOREST PROVINCE

MR. R. H. CAMPBELL, Director of Forestry

An Address Before the Canadian Forestry Association.

The wealth of a nation may be in the character, the ability, the energy, the resource of its people, but the material basis of wealth is found in the natural resources of the country. Without such a material basis the ability of the people has but little on which to exercise itself and indeed the character of the people is demonstrated to a large degree by their use or misuse of the natural resources. An enquiry into the extent and condition of the natural resources of the Province of Manitoba is therefore one of great interest.

Manitoba has not been looked on as a forest country, but it has always had a considerable area of forest and, since the boundaries have recently been extended, a large territory has been added which is almost entirely forested land.

The forest flora of this province is varied. At the south-eastern corner the red pine of Ontario intrudes intermingled with spruce, jack pine, tamarack, birch and poplar. Along the valley of the Red and Assiniboine rivers was a mixed forest of elm, ash, oak, basswood, and ash-leaved maple where trees were found ranging to 24 inches in diameter. Rising like islands from the agricultural plains, tracts like the Turtle, Riding, Duck and Porcupine Mountains, bore forests of oak ash and popular in the Turtle Mountains, and of spruce, jack pine, oak, elm, ash popular and ash-leaved maple in the others. The character of the virgin forest may be seen from the following extract from a report of explorations made by Professor Hind on the 8th Nevember, 1858:

"I beg to subjoin the circumference, five feet from the ground, of a few trees within 50 yards of our camp on the Riding Mountain:—Aspen, 4 ft. 6 ins.; 4 ft. 6 ins.; 4 ft. 1 in.; 5 ft.; White Spruce, 7 ft. 3 ins.; 5 ft. 6 ins.; 6 ft. 6 ins.; 6 ft.; Birch, 3 ft. 6 ins.; 3 ft.; Poplar, 4 ft. 9 ins.; 4 ft. 6 ins. These trees represent, as far as observations permitted, the general character of the forest on the summit plateau of the Riding Mountain."

Spruce, tamarack, jack pine and poplar are useful for lumber and for pulp. The hardwoods may be the foundation for industries of great value. A more detailed description of each species and its possible uses is attached.

The forest in the southern portion of Manitoba, with the exception of wood lots on farms, is now almost entirely confined to the forest reserves and a short description of them follows:—

Turtle Mountain Forest Reserve lies along the international boundary in the western part of the province. It comprises an area of 69,920 acres, elevated from 200 to 600 feet above the surrounding prairie and broken with lakes and sloughs which form the sources of the Pembina and White Mud Rivers. The soil is a heavy clay and consequently is not the most favorable for coniferous forests, but poplar, ash and oak grow naturally and it only requires protection from fire to make this a well forested tract and one of great value to the district and the province. Small experimental plantations of spruce and Scotch pine have been set out and are making satisfactory progress. One of the best purposes served by this reserve will be as a summer resort, and on the beautiful lakes situated in the reserve there are already a large number of summer cottages and an appreciative summer colony.

The Spruce Woods Forest Reserve is an area of sandy land 143,680 acres in extent in townships 8 to 10, ranges 12 to 16, west of the principal meridian, part of which is traversed by a tamarack swamp. In the swamp the tamarack grows well and is reproducing satisfactorily. On the uplands a scattered growth of spruce is in places making a slow effort to reforest the dry, wind-swept prairie, while over a considerable portion there is no mature growth to furnish a seed supply and efforts at artificial seeding have been barren of results. This land is of no value except to grow a crop of trees and as an experimental plantation has shown that this method will be successful, a forest nursery has been established to provide trees for reforesting. There is now provided in beds at the nursery the following stock:—

Trees in Nursery—Spruce Woods Reserve.

1 Year Old—		
Jack pine	50,000	
Scotch pine	2,000	
White spruce	100,000	
Total		152,000
2 Year Old—		
Lodgepole pine	30,000	
Bull pine	35,000	
Black spruce	5,000	
Jack pine	5,000	
Total		75,000
3 Year Transplants—		
Jack pine	1,500	
Bull pine	1,500	
Total		3,000
Grand total		230,000

The Riding Mountain Forest Reserve, comprising 983,400 acres, the Duck Mountain Forest Reserve, comprising 987,680 acres, and the Porcupine Forest Reserve, comprising 759,040 acres—a total of 2,729,120 acres—are tracts of land rising from 300 to 1,000 feet above the surrounding plains, and their general character is the same. The timber consists of spruce, jack pine, and tamarack on the upper plateau. Poplar, with considerable white birch, covers most of the lower plateau, and there is scattered in the coulees a growth of elm, oak, ash and poplar.

These tracts form a very important watershed from which flow all the main tributaries of the Assinboine River to the south, and also to the north and east a number of streams reaching Lakes Dauphin, Manitoba and Winnipegosis. The retention of a forest cover on these hills means much toward the regulation of the flow of these streams.

As the home of the large game animals these reserves are justly and widely celebrated, and they give opportunity to the citizens of the province of obtaining the recreation which is so much needed in our strenuous civilization, besides bringing in a good revenue to the province and the residents of the district.

Lumbering has been carried on on the Riding Mountains since an early day in the history of the province, and fires following lumbering have done great injury to the timber. The cutting by the lumbermen and by the settlers has been done with the object of getting out the best timber as cheaply as possible, and without considering the crop that was to follow. As a consequence much timber that might have been used was left in the woods, trees that should have been left to provide a seed supply were taken out, and much debris was left to feed and make fiercer the fires that followed. Fires were uncontrolled for many years and the result in the condition of the stand at the present time is apparent. Mature timber is found only in scattered islands, and the remainder is covered with young growth which needs careful protection for years before it becomes useful or revenue producing.

The Riding Mountain Reserve is a very important one, as is shown by the large demand for timber from it. In 1911-12 there were taken out under settlers' permits 3,756,613 feet of lumber, besides other products, such as posts, rails, cordwood, etc., and the yearly demand is increasing. With the exception of a few small tracts, which were granted under license before the reserve was established, the cutting is now all done under settlers' permits. In order to locate and control the cutting by settlers, so as to get careful logging, close utilization and disposal of debris, small mills have recently been allowed in the reserve under contract to cut under the authority of settlers' permits on definite tracts. This has made an improvement in the method of operations, and, if properly supervised, should result in improved methods that will perpetuate the forest.

The arrangement by which the forest reserve officers are given no authority over the cutting on timber berths in the reserves granted under license, although the licenses makes provision for improved methods, leaves the best timbered areas in the reserves to be operated without any supervision to reduce the fire danger or to insure the reproduction of the forest. That improvement in methods should be required of settlers and small operators, while no effort is made to introduce such methods on large operations is not only illogical, but is largely subversive of the objects for which the reserves are established, namely, the protection and reproduction of the timber of the best species in perpetuity.

The prevention of fire on the reserves is a problem similar to that of the prevention of fires in cities. The things to be provided are: (1) The means of getting immediate information of fires; (2) means of reaching fires quickly; (3) a staff of fire fighters; (4) equipment for fighting fires and preventive measures.

Each reserve is divided into ranger districts with a forest ranger in charge. These districts now average 200 square miles and are too large. The area which one man can patrol will vary with the special danger of fire that there may be in the district and with the efficiency of the preventive measures adopted. For effective protection in any frequented district the area should not be more than 100 square miles.

To get immediate information of fires, a sufficient patrol is required, and this is supplemented by stationing men at elevated lookout points, where a view can be obtained over large areas of the forest, and by constructing telephone lines by which warning of fire may be transmitted without delay.

To provide means of reaching fires quickly, roads and trails are opened up so that all parts of the reserve may be readily accessible.

To obtain fire fighters when more than the regular staff of the reserve are required for that purpose, a populated district in the vicinity is required, with means of communication and of reaching the scene of the fire. One of the great difficulties of handling fire in the far north is that if the fire gets beyond the control of the ranger it is usually impossible to get assistance owing to the sparse population.

Equipment for fighting fires and preventive measures consist of the plowing or otherwise making of fire guards, the locating of fire fighting tools at convenient points, and the furnishing of easily transported tools, such as canvas water buckets, to the rangers.

As an example on the Riding Mountain in the past year, the reserve has been divided into seven ranger districts, with an area of 220 square-miles on the average. One ranger house has been built, 74 miles of road, 10 miles of trail, 19.5 miles of fire guard, 25 miles of telephone line, have been constructed, so that we are working towards a proper administration and equipment. It will be seen that a large expenditure on capital account will be necessary for a number of years in order to ensure future revenue.

On the east side of Lake Winnipeg, rock of the Laurentian formation intrudes from Northern Ontario, and, skirting the lake to the north end, stretches over a great part of Northern Manitoba to Hudson Bay on the east and westward to a line running north-west from Limestone Bay on Lake Winnipeg, from which line limestone is the basic rock. With the exception of the large area of clay land on the Hudson Bay Railway route, and scattered valleys and prairies of small dimensions, the remainder of this area will be valuable only for timber growing, except in so far as mineral development may occur. Unfortunately at cycles of dry seasons these northern forests have suffered greatly from fire. The present stand seems to indicate that at periods of 80 and 40 years ago there were general conflagrations that swept over immense stretches of the forest, while smaller fires have occurred at more frequent intervals. The country is, however, covered practically everywhere with a growth of trees which, while generally yet too small to be of much utility, have great promise for the future. The stand on islands and places protected from fire of mature timber up to 24 inches in diameter, shows clearly the timber possibilities of the region and, with the water powers on the rivers flowing through it, industrial development there has possibilities that cannot easily be over-estimated.

But the question will very properly be asked: Will the return for the expenditure for protection and reproduction of the forest be adequate?

In reply, let me say that the investigations we have made of the rate of growth of timber in the Province of Manitoba compare favorably with the rates of growth in European countries, such as Germany France, and Sweden, where forestry is being practised profitably. The rotation, or the period required for maturing a crop of trees from seed, in Germany is with spruce and pine from 60 to 80 years. In Sweden the rotation is 60 to 80 years for pulp wood and 100 to 120 years for lumber. The investigations of rates of growth of spruce and pine so far as they have been carried out here indicate that on ordinary well drained soil the period of rotation might be within similar limits. Attached are tables showing rates of growth in the Riding Mountain Forest Reserve, and also for the purposes of comparison similar tables for forests in Sweden.

The annual rate of production of timber in a European forest is from 250 feet board measure per acre up to as high as 1,000 feet board measure. If only a production of 100 feet board measure per annum were reached in the present Riding Mountain, Duck Mountain and Porcupine Hills Reserves in Manitoba, the aggregate area of which is 2,415,840 acres, which would mean an annual cut of 241,584,000 feet board measure, a cut equal to that of Manitoba, Saskatchewan and Alberta at the present time, and if the production were 200 feet board measure to the acre it would be 483,168,000, which exceeds the present cut of lumber in Nova Scotia or in New Brunswick, and this includes only a portion of the old Province of Manitoba, not considering at all the new area added in the north.

In order to make clear the case for forestry in the Province of Manitoba, I think it would be fair to make a comparison with Sweden, which is a northern country, where the conditions of climate and soil are similar. Much of Sweden is underlain by a similar granitic formation to that of our Laurentian area. Sweden has made great advances in forestry in recent years.

Sweden and Manitoba may be compared as follows:

	Sweden	Manitoba.
Population.	5,300,000	500,000
Total area (square miles).	172,876	251,832
Total area, acres	110,630,640	161,172,298
Water area, acres	8,851,211	12,739,600
Land area, acres	101,789,329	148,432,798
Agricultural land, acres ...	9,089,600	30,000,000
Forest land, acres	52,900,000	
Forest land owned by government, acres	21,200,457	

In Manitoba the lumber cut for 1911 was 53,745,000 feet board measure, which would equal 8,957,500 subic feet, and the value was $769,806. The number of mills operating was 103.

From the forest area of Sweden the returns are as fololws:

Export.	216,000,000
	Cubic feet
Timber output	1,020,000,000
Domestic use	560,000,000
Wood working industries	54,000,000
Mining.	190,000,000
Total value of forest products	$107,000,000
Total value of agricultural products	214,000,000

(A cubic foot is equal to about six feet board measure.)

Wood Working Industries, 1905.

	Saw mills.	Pulp mills	Match factories
	1370	138	20
No. of employees	41,849	8,897	5,678

Government Forest—Sweden.

Area.	21,200,457 acres. 90% forested.
Revenue.	$3,415,625
Expenditure.	1,293,000
Net Revenue ..	2,122,625
Staff (technical) ...	230
Forest rangers . .	741
Total staff	971

Sweden has probably the advantage of Manitoba in having better drainage in some of the northern areas and in having a more extended sea coast, with quicker and cheaper access to long established markets, but I cannot see that other conditions exist that give Sweden an advantage over Manitoba if the forest areas were in as good condition. This they are not at present, nor will they be for a long time to come, and it will require a large expenditure on protection and improvements without regard to revenue during that time, to bring the forests into good condition and to produce a revenue that will more than offset the expenditure. Under the administration of the Federal Government the forests have been allowed to get into such an unsatisfactory condition, and the Federal Government should make the necessary expenditure from its large revenues to place such a great natural resource, and so important to the prosperity of the province and of the whole country, in a condition of permanent security and producing power so that it may regularly and continuously produce a revenue for the state and the raw material for industries.

MUCH ACTIVITY IN QUEBEC FORESTRY DEPARTMENT.

Mr. Avila Bedard, assistant to Mr. Piche, Chief Forester, left Tuesday by the Megantic for Europe, where he will study the management of forests and measures employed to combat insects in France, Belgium and Switzerland.

The engineers of the Forestry Department are at work as follows:—

Mr. George Boisvert has just returned from an exploration trip to the sources of the Kedgwick, Mistigougeche and Metis Rivers, wher he found extensive forests, accessible and easy to develop.

Mr. L. D. Marquis is taking an inventory of the forestry resources in the basin of the Assametquagan River in the Metapedia Valley.

Mr. Felix Laliberte will leave shortly to go and study the general conditions and the forestry resources in the basin of the Mistassini River in the Lake St. John District.

Mr. Ernest Menard will visit the basin of the Peribonka River.

Mr. Picard will go to Abitibi to make and review a study of the Migiskan and Bell Rivers.

Mr. Henri Roy will continue to make the classification of the lands situated north of the Quinze River.

Mr. Henri Keiffer assisted by Mr. Picard will classify in the townships and counties of Terrebonne and Labelle.

Mr. Barromee Guerin will work in Beauce to complete the inspection of lots and to classify vacant lots.

OCEAN FALLS BLUNDER.

We recently gave particulars of the litigation in which the Ocean Falls Company was involved. Later the Crane Co. of Chicago and Vancouver secured, through their solicitor, a judgment for $20,330. This company previous to this had secured an unopposed order for the sale of the lands. The Ocean Falls Company made two issues of debentures aggregating $3,-500,000, securing the debenture holders by trust deed. The issues were placed in England. The solicitor of the Crane Co., in going through the records in the Land Registry Office, ascertained that by the manner in which the property is registered the debenture holders have security for an amount totalling $100,000. If this is successfully carried through by the Crane Co., who may attempt to buy in the whole property at this figure, English investors will, no doubt, be very wary about buying timber or timber land bonds. In registering the trust deeds the Ocean Falls people, in an effort to minimize the Government fees, valued the lands at $100,100, bringing the fees down to $101 instead of $3,500. The Crane Co., contend that as the trustee for the debenture holders has registered the trust deeds as a security mize the Government fees, valued the lands at $100,000. they can buy in at that figure all the 80,000 acres of timber leases, together with the townsite, hotel, power plant and all buildings. In the meantime the debenture holders are taking their ordinary course, and preparing to sell the entire assets of the company as a going concern. Interesting developments will, no doubt, materialize within the next thirty days.

INSECT PROBLEMS IN CANADIAN FORESTS

MR. J. M. SWAINE

Assistant Entomologist for Forest Insects Division of Entomology, Ottawa.

An Address Before the Canadian Forestry Association.

Among the serious problems of forests conservation, we have to consider the control of destructive insects. In recent years the Canadian forests have been, in general, less subject to widespread devastation by this cause than parts of the United States forest region. We have had our own serious troubles, however, and need to be continually on guard against destructive outbreaks. It will be possible to give here only a brief outline of the groups of forest-insect problems with which we are confronted.

Among the best known of our forest insects are the defoliating or leaf-feeding species; of these the larch saw-fly, the spruce bud-worm and the tent caterpillars must be familiar to all woodsmen, and illustrate the nature of the injury caused by insects of this sort.

As everyone knows, the larch saw-fly has killed the tamarack over large areas of Eastern Canada at recurring intervals. It is now spreading westward, and was most injurious last season in Western Ontario. It is also firmly established in the wooded regions of Manitoba, and has spread into Saskatchewan.

The spruce bud-worm, in it caterpillar stage, attacks the buds, and later the leaves, of spruce, balsam, fir, hemlock and larch. It is most noticed in spruce forests. While it has been known to kill large numbers of trees, its parasites usually effect control before serious damage is done. This has been the history of the recent outbreak in the Quebec and Ontario woods. It is always to be feared that spruce weakened by the bud-worm will be attacked by destructive bark-beetles.

The tent caterpillars were particularly destructive in Quebec Province and in parts of Ontario last year to poplar, birch and maple, and they are even more numerous in many districts the present season. Their favorite diversion in the Gatineau Valley is to hold up the C. P. R. trains, and in this they have succeeded quite frequently.

Throughout parts of the prairie country poplars have commonly been stripped in part or completely by leaf feeding chrysomelid beetles. The reports which have come to us have had reference chiefly to shade-trees.

On shade and ornamental trees all such leaf-eating insects can be controlled quite readily by spraying with lead arsenate of Paris green; but of course such a method can only be applied to small areas.

Only a few of these defoliating insects are ever seriously destructive in our forests, but unfortunately we have no direct means of combating those few on large areas. Nature controls them in a longer or shorter time by means of their parasitic enemies and weather conditions. We hope some day to be able to assist materially in this control by the distribution of the parasites, smaller insects which prey upon the pests; and the Division of Entomology is studying these problems from that standpoint.

The second group includes the cerambycid and buprestid borers. The adult beetles deposit their eggs in the bark of dying trees and [illegible] logs during the months of June, July and August. The younger grubs bore rounded or flattened holes in the wood, and seriously reduce or destroy the value of the timber. They are especially destructive to fire-killed pine and spruce. When logs have to be left in the woods over a season the loss is usually considerable, and often very great. If such logs are barked before June, or got into the water early, danger from this cause is averted. Logs that are loosely piled, so that the inner bark rapidly dries are less seriously injured. Control measures depend largely upon the time of cutting, the time of sawing, and the method of handling the logs, and must be modified to suit local conditions.

Certain species of this group attack healthy trees, and are sometimes directly responsible for considerable loss; but such injury is not common to pine and spruce in our forests. The poplar, however, is frequently killed by members of these two families.

One of the more serious problems which the lumber industry needs to solve is the lessening of the waste in the production of lumber. It should be emphasized that the borers which we have just been considering form one of the most important factors in the production of this waste.

We may mention here the Pissodes beetles, some species of which attack the terminal shoots of young pine and spruce. Two or sometimes three laterals may eventually replace the killed terminal and the result is the "double-tops," so common in many places. Such injury is always more or less in evidence, and at times assumes serious proportions. Control measures include the destruction of the infested parts, and should be adopted at an early stage of the outbreak.

The third group to which I would call your attention includes the bark-beetles, belonging to the family Ipidoe.

The true bark-beetles breed in the inner bark and outer growing layer of wood, and a number of species, particularly of the genus Dendroctonus, are very destructive to pine and spruce, and to a lesser extent to larch, throughout many parts of North America. The appearance of the beetles and the nature of their work can be best understood from examining the collection.

The bark-beetles are small, cylindric, hard-shelled beetles, usually from 3/16 to 6/16 of an inch in length, and reddish yellow or brown to black in color. They bore round holes through the bark of living and dying trees, cut egg-tunnels between the surface of the wood and the inner bark, and deposit their eggs along the tunnel sides. The grubs which hatch from the eggs bore into the inner bark, away from the egg-tunnel, and the adult beetles which develop later from the grubs cut round holes through the bark to freedom. Many species are always common in dying trees, and, at most, only aid in killing trees injured through other causes; but there are numbers of bark-beetles which attack healthy spruce and pine in immense numbers, and prove to be the most destructive of all forest insects.

Throughout the forests of the United States certain bark-beetles of the genus Dendroctonus have killed many billions of feet of pine and spruce in the last few decades. In the forests of Maine, West Virginia, the Black Hills region ,and Oregon, wher they have been particularly destructive, extensive control methods have had to be adopted, and have proved very successful.

In Canadian forests they are continually destructive, but we have had no great outbreaks in recent years. A generation ago the destructive spruce bark-beetle, D. Piceaperda, then causing widespread destruction in Maine, spread into the New Brunswick forests and was responsible for considerable loss. This beetle is a very serious enemy to spruce, for it is able to attack and kill the finest trees, and has proved as destructive as a forest fire. It occurs throughout the spruce region of Eastern Canada, and there is always danger of serious trouble from its attack.

The fir bark-beetle, Ips Balsameus, is apparently the cause of much dying fir throughout Quebec and Ontario, and possibly also in New Brunswick. There are numbers of other species of this family present in our eastern forests, and yearly responsible for more or less dying pine, spruce and fir.

In the spruce areas of Manitoba, a species of Dendroctonus has killed small numbers of jack pine, and is apparently an enemy well worth careful watching. I have studied it chiefly in the Riding Mountains, where it was very numerous last spring in fire-injured trees about the burns of the previous season. It had attacked and killed isolated jack pine at some distance from the burns. Ips Perurbatus is very abundant, particularly in dying white spruce; but I found no evidence there that it was attacking healthy trees. The spruce bark-beetle, Polygraphus Rufipennis, is very abundant in spruce and pine, and has, in other places, proved to be a destructive enemy. The larch bark-beetle, Dendroctonus Simplex, is very abundant in dying larches, and will be able to assist the larch saw-fly in its destructive work. Dying spruce, pine and larch in the Manitoba forests should be carefully investigated, and outbreaks promptly dealt with.

The British Columbia forests harbor a larger number of the destructive species of this family. There are, apparently, judging from the reports we have received, several incipient outbreaks there at the present time; and since certain species, known to be present in British Columbia, have been very destructive south of the Boundary for several years, we are justified in making a careful investigation.

The methods of controlling the destructive bark-beetles depend largely upon the local conditions, to suit which the control measures must be modified. In general, the object is to remove the infested trees which contain the overwintering broods and by barking such infested logs, and with some species burning the bark, or getting the logs into the water before the beetles emerge, to destroy the greater number of the brood. It is fortunate that they are destructive in a locality as a rule only when they are present in very great numbers, and we have but to reduce their numbers to a certain level to protect the green timber.

Old, mature spruce and pine die from various causes. Many trees, particularly the pines, are seriously injured by fungus diseases; with many the death is unquestionably hastened by the attack of bark-beetles; but the death of a few isolated, mature trees, even though attacked by bark-beetles may have little significance. It should be remembered that spruces attacked by the spruce bud-worm often appear to be dying, owing to the brown appearance of the dead buds and leaves, but such injury is seldom as serious as it seems.

When, however, numbers of trees are dying in clumps or as isolated trees; with the reddish-brown or black bark-beetles entering or boring within the bark, and extruding reddish boring dust, with or without the presence of pitch-tubes about the entrance holes, the advice of a competent forest entomologist should be obtained without delay. Bark-beetle outbreaks are not difficult to control when taken in time; but after they are well under way they have proved as difficult of control and quite as destructive as a forest fire.

The timber-beetles, belonging to the same family, Ipidoe, have quite different habits. They drive small, round tunnels into the wood, from May to September, and breed within them. From the action of a fungus which grows upon the tunnel walls, and serves as food for the beetles and their grubs, the tunnels are stained deep black. Such holes are very common, particularly in hard-wood timber, and are usually known as "pinholes." In some districts they cause a considerable loss in value. Their control must be based upon local condition. All the species breed in stumps and some in slash. Therefore, with stumps cut low and the slash burned, there will be little opportunity for breeding in the limits. Logs put in the water early will reach the mills practically free. Barked logs and green lumber are also attacked, but not after the surface has become dry. Infested slabs and other waste should be burned. In addition to these general measures, special devices can be adapted to local conditions.

The Division of Entomology at Ottawa is paying particular attention to the study of forest and shade-tree insects and their control. We have a wide field to cover, and in some respects new problems to solve. We need the assistance of the lumbermen in getting in touch with many of these problems. You can assist very greatly by sending us information of dying or insect-injured timber, and insect injury to logs, lumber and stored wood products.

B. C. RESOURCES.

British Columbia possesses one of the few great timber areas of the world. While the countries of the Far East have lost all the timber they ever had, while European nations are resorting to the most intensive methods possible to secure continuity of stand and a certainty of yield and are planting trees by hand over great areas to ensure crops in the future; while Eastern Canada and the New England States are clamoring for lumber and viewing with alarm the rapidly diminishing supplies in their country, British Columbia has a vast area of over 65 million acres of timberland, which should produce, according to estimates of experts, at least one hundred board feet per acre per annum, or a total of 6½ billion feet. This would return to the Government over 6½ million dollars every year. The Province is the possessor of a heritage of over 300 billion feet of timber, which is quite half of all that standing in the Dominion at the present time. At the present rate of cutting, the loggers of the Province are taking annually only one-fifth of the amount which is added by the natural processes of growth.

FORESTRY IN ONTARIO

E. J. ZAVITZ

Forester, Province of Ontario.

An Address Before the Canadian Forestry Association.

In coming to you from Ontario, I wish to speak more particularly of forestry matters in Southern Ontario. The old settled agricultural portion of Ontario lying along the St. Lawrence River and south and west of the proposed Trent Valley Canal, aggregates an area of about 22,000 square miles. To give you a better conception of the size of this part of Ontario, I might say that it is somewhat larger than Nova Scotia and more than twice as large as Prussia, a state which derives an annual revenue of about 17 million dollars from its forest crops.

When the first settlers arrived along the shores of this of Canada, some 150 years ago, they found an almost unbroken forest of magnificent hardwood and pine. This forest has gradually disappeared before the axe of the settler and lumberman, so that to-day there is about 9 per cent. of inferior woodlands in this older part of Canada, some 150 years ago, they found an almost of inferior woodlands, as much of the so-called 9 per cent. is composed of culled-over lands, woodlots of inferior species and altogether containing a very poor class of timber. Many townships in the more densely settled portions of Ontario contain only from 5 to 6 per cent. of woodland. These districts are fast approaching a treeless condition with unobstructed views comparable to much of the landscape in the middle west.

The clearing of land for food crops will probably be difficult to prevent, but in the early settlement in Ontario much land was cleared that would have been more productive had it been left under forest cover. In many cases these inferior soils, which were cleared, have become a menace.

In many places light, sandy formations have been cleared, and after a few years of cultivation have become a waste or menace to the surrounding property, as light soil after losing the humus or forest mould soon begins to blow and shift. In many cases we find this shifting sand covering adjacent good land, filling in township roads and creating desert conditions where once stood splendid forests. It is interesting to note that frequently this light soil originally produced very fine timber as, pine, oak and chestnut. In other localities we find steep banks denuded which, after a few years of cultivation and pasturage, soon began to erode and break away. Other forms of mistaken clearance may be found where thin or gravelly soils have become almost useless for the production of agricultural crops. These waste types of soil may be found on many farms in small areas of a few acres, surrounded by good tillable land, but in a number of cases the areas are larger, being from 1,000 to 50,000 acres in extent.

Education and encouragement to improve remaining woodland conditions; reclamation of waste soils by forest planting, are the problems confronting us in older Ontario.

A small percentage of land owners are interested in giving their woodlands care and protection. The number will gradually increase; but when one realizes that only a limited number of land owners give their annual crops reasonable care and are slow to introduce new methods, what can we expect of private woodland owners in managing a crop where the time is so great?

Our department offers assistance to the private woodland owners by way of bulletins, free planting material and any possible advice which may be of assistance. We are having an increasing number of applicants who wish to plant protective borders about their woodlots or introduce new or better classes of trees into its composition.

Another form of work undertaken by the department is that of reclamation of waste lands by forest planting. As referred to in previous meetings of this association, Ontario commenced this work in one of the oldest districts in the province. The Norfolk Forest Station, started in 1909, at present is comprised of 1,600 acres of land, being a part of a light, sandy area, some 5,000 acres in extent. The soil of this area, when cleared and tilled, soon began to drift and blow so that farming was gradually abandoned. This soil was originally covered with white pine, chestnut, oak, ash and other valuable hardwoods. To-day portions of this land have been cleared for farming and then abandoned, while the remainder contains second growth of pine and oak. About 200 acres have been planted with the following species: white pine, Scotch pine, red pine, Jack pine, spruce, black locust, chestnut, red oak and a few minor species. At this forest station is located the forest nursery which produces plants for local planting, and also for distribution throughout the province to private landowners.

The department supplies private landowners with nursery stock for forest planting. The distribution of planting material commenced in 1905, and to-day we have experimental plantations in every county in older Ontario. These plantations are from one to ten acres in extent and will be of great value in the future to show what can be done along this line. About 400,000 plants a year are being sent out for this experimental planting. The earlier plantations are beginning to make a show and we expect that they will induce others to reforest poorer soils about the farms.

The reclamation and reforesting of the larger waste areas in Southern Ontario will have to be undertaken by such large corporations as the state or municipality. It cannot be left to the initiative of the private individual. We hope that the Norfolk Forest Station will prove the value and necessity of undertaking this work.

Southern Ontario has over 200 square miles of this unproductive light sand formation which originally produced valuable pine and hardwood.

This land must some day be made productive, and a policy of reforesting has many arguments in its favor. It will pay as a financial investment; assist in ensuring a wood supply; protect the headwaters of streams; provide breeding ground for wild game; furnish object lessons in forestry and prevent citizens from developing under conditions which can end only in failure.

BURNING FOREST SLASH

Bulletin Issued by H. R. MacMillan, Chief Forester of British Columbia.

Owing to the great density of the timber stands on the coast and in portions of the interior of British Columbia, to the conditions surrounding the lumber industry which permit of the removal from the woods of only a very small proportion of the stand, and to the methods of logging, the amount of slash remaining after logging is excessive. Generally also the timber remaining after logging is without further value, and, since the slash effectually prevents the growth of a valuable second crop, slash must be removed first if the land is to be utilized in producing another crop of timber.

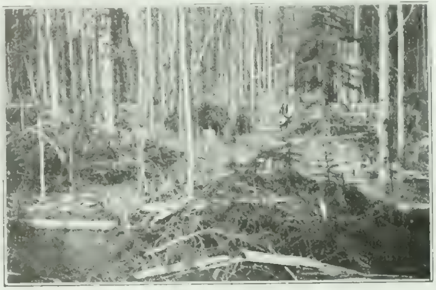
Showing where slash has been burned on logged over area. No danger of fire now.

It need not be pointed out that by far the greater portion of the land in British Columbia is, owing to its roughness and lack of soil, unsuited for agriculture, and the only possible way in which it can be made a steady source of wealth is by the growing of timber. Besides its effect in preventing the production of a second crop of timber, slash is universally recognized as the most serious of all fire hazards, and that it is only a question of time before every slash area will be set on fire. This being the case, the evident thing to do is to burn the slash at such a time and under such conditions as will ,so far as humanly possible to determine, render it certain that the fire does not spread to adjoining timber.

Logging Slash before burning. A most dangerous fire trap.

The Forest Act of British Columbia does not make the burning of slash compulsory, although in the States of Oregon and Washington, where the conditions are identical, such laws are in effect. The Forest Act does, however, empower the Minister of Lands or the Forest Board to require owners to construct a safe fire-break about any area of slash, and where necessary to protect valuable timber this provision of the Act will be enforced.

To be at all safe or effective against July or August fires, fire-breaks must consist of a strip 5 to 10 feet wide cleared to mineral earth and a strip 10 to 30 feet wide cleared of brush, inside which all dead snags standing within a distance of 100 feet must be felled.



Slash on logged over area piled so as to reduce fire danger. All the contractors working on the 2000 miles of railroad being constructed in B.C. are now required to pile slash.

As long as the slash remains, however, the danger from fire is still serious, and it is felt that it would be far better to burn the slash itself than to construct such fire-breaks, the cost of which is as much or more than that of slash burning.

A number of loggers in British Columbia have already adopted the practice of burning their slash every year either in the spring or in the fall, and it is hoped that all will decide to apply the plan to their operations and take up the matter immediately. The present spring is backward, and except in high winds slash burning may be safely carried on until the first or second week in June. During April no permit to burn is required, and after May 1st, permits can be obtained from the local forest officers. While it is impossible to specify the conditions as to weather when burning can be done safely, or the methods by which the burning can be most effectively accomplished, these matters being best deter

Slash left after cutting ties in Lodgepole Pine Forest. Tete Jaune Cache, B.C.

mined by the superintendent, the following general rules may be of assistance:

1. Always construct a trail or a light fire-break around the slashed area before starting fires. This will serve to confine the fire and also permit men to get around the fire quickly.

2. Be sure and have enough men on hand when a fire is started to control the fire if it threatens to spread beyond the slash.

Slash piled by tie contractors for burning in the fall

3. Never start a fire in the morning unless you feel certain a strong wind will not arise. The best time to start a fire is after 4 o'clock in the afternoon on a calm day; if the weather is warm and the slash dry all the better.

4. If the slash area is surrounded by timber start fires first on the leeward side if there is a breeze, or on the uphill side if on a slope. When the danger of fire spreading beyond the area to be burned is past, set fire on the windward side or at the base of the slope; also whenever possible take advantage of a breeze blowing away from green timber.

5. Burn over the area as quickly as possible. This can be done by starting fires in a large number of places.

Showing where slash has been burned on logged over area. No danger of fire now

6. Keep a watchman on the area burned until all fires are out. Cut down any snags which may be burning. All fires should be completely out before June 15.

Experience has shown that slash can be burned safely at the cost of 5 to 20 cents an acre, and that this expense is fully repaid by the resulting added safety of the [illegible], equipment and surrounding timber. The cost can be materially reduced if the policy of annual burning is definitely adopted, since by a little forethought the superintendent and foreman can arrange to have drag and skid roads serve as fire-breaks. When it is known where the boundary of an area to be burned will lay, it is also a material help to have the trees felled away from the green timber.

UTILIZING WOOD WASTE.

Perhaps the most interesting development in the manufacture of wood products has arisen in the increasing variety of uses to which wood waste can be put. Beginning in the forest the closer utilization of the various wood products can be traced through the sawmills and large woodworking industries, right down to the firms working only on small specialized lines.

It is now commercially possible to reduce the fifty to sixty per cent. waste formerly left in the woods by the lumberman to no more than five per cent., by a combination of three well-developed chemical industries, namely, paper-making, wood distillation (in a modified form) and the manufacture of resin oils. Practically all the valuable constituents from the stumps, tops, branches and defective stems which would otherwise be left to rot in the forest are thus converted into useful commodities.

The utilization of mill waste is being made increasingly possible by the developing markets for odd and short lengths in lumber instead of a few assorted sizes. Many sawmills use their waste products in the manufacture of laths, mouldings, pickets, roller blinds and paving blocks. The manufacture of wood pulp from the small waste wood now being fed to the burner is also a commercial possibility. Even sawdust has its uses, and in countries where more intensive utilization prevails it is being successfully manufactured into a variety of products. Several plants have been erected in this country for its manufacture into ethyl (or grain) alcohol, sugar and briquets for fuel.

The bulletin now being issued by the Forestry Branch, Ottawa, on the Wood-Using Industries of Ontario, throws considerable light on the utilization of wood waste. Sash and door factories sell or use their short ends and trimmings for the manufacture of boxes, baskets, bobbins, butter moulds, insulator pins, novelties, skewers, spindles, spools, stakes and woodenware. They bale their common sawdust and sell it for floor covering for the manufacture of composition novelties, and for cleaning screws. They sell shavings for bedding packing and for drying wet land. Hickory and other hardwood dust is sold for smoking meats. In fact, just as the pork packers boast of using all a pig but the "squeal," so wood manufacturers will soon be able to boast of using all the wood but the bark and even that, in the case of some woods, such as hemlock, is of considerable value.

WILL COMPLETE DONNACONA PAPER COMPANY PLANT.

The H. E. Talbott firm of engineers, which is in charge of the construction of the big power dam for the Laurentide Company at Grand Mere, Que., has taken over the contract to complete the plant of the Donnacona Paper Company, near Quebec, and will build both the dam and the paper mills. The plant will, therefore, come into operation this season after all. The Talbott Company, which is an American firm, evidently regards the prospects in paper mill construction in Quebec Province as distinctly good, for the firm is now here apparently to stay. They have opened offices in the McGill Building in Montreal.

PAPERMAKING

By ERICH RICHTER, D.E., D.Sc.

As is well known, many centuries ago, the Chinese and Japanese have been making excellent paper from various kinds and different parts of plants. Nobody to-day is able to tell exactly where and when this people first developed the art of papermaking. We are used to look upon China as the cradle of a good many industries, not in a modern sense of the word of course, and it is highly probable that papermaking was quite a common thing in that country long before any other part of the world even felt the necessity of producing a thin white sheet to write upon. Of course we are referring here to writing paper, and as the name indicates this is only one kind of application, and although we have proofs that paper was used in old Egypt for wrapping purposes, the possibility of transferring human ideas in a rather simple way from one man to another, from one people to another, has been so greatly facilitated by the use of paper, especially writing paper, that it may be well to call the history of the former in general, the history of writing paper and writing.

Many thousand years ago, about 2670 B.C., Tien Tschen in China inevnted the ink. It was some kind of lac and was at first not used on real paper, but on silk. Later on a black stone dissolved in water, and still later, about in the third century, B.C., lamp black served the same purpose.

In Egypt a few thousand years old Papyrus rolls were found, the ink used being of different material and color. It is no doubt, however, that China was the first country to produce paper, as understood in a modern way, if we define as paper thin sheets consisting of fine fibres with certain felting qualities. The papyrus of old Egypt, was made from the so-called Cypergrass, same being cut in thin sheets and several of them glued together.

The Arabs first used cotton fibres for their paper, and only at the end of the 8th century, A.D., rags were employed. Here again it should be mentioned, that the Chinese were the first to use rags, but later they abandoned this practise, using the same raw material and probably the same methods as to-day, the bast fibres of Wickstroemiacanescens, (Gampi), Edgeworthia papyrifora (Mitsumata or Dsuiko), and Broussonetia papyrifera (Kodsu) after boiling them in weak soda ash solution.

Klemm in his handbook on papermaking, divides the history of it in five parts or periods:

1. Easy Asiatic papermaking.
2. The Arab-Muric period.
3. The middle age or guild period of hand papermaking.
4. The new period of the machine papermaking, using rags as raw material.
5. The present period with wood fibre as chief source for raw material.

I have mentioned already, that facts about papermaking as regards the earliest history are rather scarce, and the same may be said about the second and third period. Especially in the last named, papermaking being considered as a more individual art, often confined exclusively to one family, who inherited the secrets from father to son, the lack of possibilities to communicate with other papermakers in foreign countries and other circumstances, brought about a condition, which was adverse to any definite progress. So it is not much more than 100 years ago that the first well-known step was made to produce paper on a larger scale and at the same time to supplant the linen and rag fibre from its dominant position. It was Mathias Koops in England, around 1800, who tried to make paper on a manufacturing basis from waste paper, straw, hay, hemp, flax, wood and bark.

Before him a number of prominent men and scientists, Guetard, Seba, Reaumur, Schaffer and others, had made proposals to produce paper from different kinds of raw material, excluding the rags. Especially the last named, Jakob Christian Schaffer from Regensburg, a botanist and minister, seems to have gone into some extensive experiments about the production of paper, from the most varying substances. In 1765 he published a book with samples of paper, made for instance from the seed cotton of black poplar, wasp nests, sawdust, moss, beechwood, willow, asp, mulberry, spruce, hop, grape, hemp, leaves of aloe, mayflower, rye straw, cabbage stumps, thistle, burr, wheat straw, broom straw, peat and others. In 1772 he published another book, with samples of paper made from more than 60 different raw materials.

It may seem quite peculiar to a papermaker of to-day that such things as mayflower, bur, thistle, etc., were among those proposed to serve as a new raw material. But of course, owing to the rather small amount of paper that was used in those days, the cheapness of labor and the absence and lack of machinery, the proposition can be easily understood.

It is also worth noticing, that some of the raw materials like peat, 150 years later, still offer themselves as problems to the pulp and papermaker. It is said, that 100 years before Schaffer made his experiments in 1672, paper was made from maize in Italy. Whether this was done on an experimental or manufacturing scale, we are unable to ascertain.

As has been already mentioned, Mathias Koops seems to have been the first who tried to make paper on an extensive scale from other raw materials than rags and linen, using mostly waste paper and straw. He helped in erecting a paper mill, called the Neckinger mill, Bermondsey. How long this mill operated Mr. Koops patents, the writer has been unable to determine. For a short time the mill produced 700 Ries white paper per week from waste paper and later on this output was doubled.

In a letter to King George, dated August 30th, 1801, 17 St. James Buckingham gate, Koops tells about experiments to make paper from straw and wood, and he also talks about his intention to produce it in a mill, to be erected for this purpose.

In September, 1800, Koops had been able to submit to the king paper which had been made in an experimental way, entirely from straw. It was of somewhat yellow color, but even then Koops realized that this quality was not a deficiency, but an advantage. Reading the print on such paper seemed to be much more convenient for the eye, especially when artificial lights, such as candles will give, were used. Although this fact has often since been emphasized, it is only recently that our attention has been drawn to it again, of course this time backed up by scientific investigations. It is to be hoped that the forthcoming proofs in this direction, will be convincing enough, to bring such pressure on the general taste in regard to the color of the paper, that the eyes of the public will derive the most benefit out of it.

It is striking to see how good ideas are sometimes given by a favored man, and how long it takes before some one starts manufacturing on a successful basis. Koops, although he had not yet manufactured it, expressed the opinion, that sheets of paper made from straw and wood and pasted together, may be used in many cases like wood, and as the material could be easily made fireproof, the product advantageously be used to cover buildings of all kinds.

About 1803 a revolution in the mechanical side of the papermaking process was accomplished, when the continuously running paper machine was invented by Louis Robert and perfected by Donkin and the brothers Fourdrinier. In the year mentioned, the first industrial machine was installed and with it, every obstacle to produce paper on a larger scale than heretofore was removed, at least as far as the mechanical side of the problem was concerned. It need not be said, that the machine was still imperfect, but the principal being the same as 100 years later, it was simply a matter of evolution and general advancement of engineering knowledge, to perfect it to such a degree, as it is now. Thanks to the genius of those four men, such a wide practical step has been made. It was now mainly a question of a chemical process, which would allow the production of paper or its fibre material to a greater extent. What kind of efforts were made to overcome these difficulties, we will discuss later on. In general, it is well known, that the manufacturing problems were introduced and mastered in a certain way only since about the middle of the 19th century. As most of the processes involved are even to-day only known to a very limited degree, good opportunities are still on hand. Every day can bring us new ideas of scientists and it will be up to the knowing and practical pulp and papermaker to shell the seed and bring out its full value, by untiring efforts. We will find later on that only too frequently, prejudices and sometimes rather simple engineering problems, checked an advancement for decades, and it is in this discipline as in others, not unusual to see that the lack of historical sense prevents an able and well meaning man to raise himself to a higher elevation, thus preventing him from overlooking the new and unexplored country below.

A second article by Dr. Richter will appear in next issue

A RAINCOAT TO RETAIL AT 10c.

By WALTER A. OLSEN

It has been variously estimated that seventy-five per cent. or more of the population of China and Japan wear paper clothing. The poorer class of Germany likewise indulge in paper apparel, as do a majority of the population of Mexico. How many more peoples of the earth are addicted to this economical habit is hard to determine.

Frequently a fashion authority has come out boldly and predicted with much self-assertion that before long the paper clothing habit would penetrate even the better classes of all nations, particularly that of the United States. And they base their predictions on logical reasoning.

About the foregoing, a man in Illinois has patented an invention to produce and market a raincoat that can be retailed for from ten cents up. This coat is made along the regulation slip on idea from an integral piece of water-proofed paper. The body is provided with an open front and having the edges along said open front turned upon themselves and secured thereto to form reinforced edges and lapels, and ears formed integrally with one of such edges and turned upon such edges and secured thereto.

The productive cost of coats of this character would be no higher than five cents each, and even this figure can be lessened. It could be folded up until it would fit in an ordinary envelope, particularly adapted to be transported in a handbag or other package used in traevling for employment in case of emergency to protect the garments of the wearer. Or it could be carried in one's pocket like the average newspaper.

The coats are made out of oiled paper, or paraffine or vellum paper, and give the appearance of silkiness at a short distance. Patents have been granted in England, France, Germany, Canada, Mexico and the United States, with patents on additional numbers pending. The original idea was for the coats to be worn only once, but upon trial it was demonstrated that they could be utilized successfully two or three times.

Where the buttons are sewed on the coat is reinforced, as is also the part where the button holes are cut. The whole operation throughout is worked out in a single sheet of paper. There result only two seams, both running underneath the arms and down the side of the coat. These seams are cemented by ordinary glue, which parts last longer than any other in the coat and do not become separated.

Even this latter operation can be obliterated. The wax in paraffine and vellum paper serves as sticking material itself. By simply running a hot iron over the two edges, the two sheets of paper will stick together forever. This method eliminates the employment of glue and also discards a separate operation. The coat is so cut from an integral piece that the weaker parts are reinforced and given additional strength.

An article of this kind should influence a world-wide market for man, woman and child. Department stores would find it a new channel of trade for their apparel and notion department. Men's furnishing shops would sell it, as would drug stores, etc. At summer resorts or in the mountains it would prove a veritable boon companion. In the lobbies of theatres and amusement places slot machines could be provided. Practically every garage in the country would keep them constantly on hand for automobile trips, parties, etc. These are only mentioned as possible sources of distribution.

They can be made in all colors to harmonize with the shade of any apparel, also in all sizes. No pockets are, of course, provided. The beauty of the invention lies in the fact that it can be carried around in the pocket or handbag and costs such a small sum that it comes within the reach of the poorest and pleases the most economical. A paper or parchment raincoat has never been tried before, and the novelty of the idea would presuppose a sure market from rich and poor alike.

STILL DISCRIMINATION

The reply by the United States Government given to the Canadian Government in connection with the discrimination clause on the sulphite duties is most unsatisfactory. They assured our Government that no discrimination is meant against Canadian provinces. At the same time, however, the tariff stands as it was with the discrimination against the provinces having wood restrictions. A popular idea as carried out in the daily press that there really is no discrimination is entirely erroneous. It stands at present as it did at the first, and has in no way been remedied.

FALLING OFF IN THE IMPERMEABILITY OF PAPER TO INK.

It sometimes happens that paper when it comes from the Fourdrinier, and is tested for impermeability to ink, leaves nothing to be desired, even with the sharpest inks, and yet causes complaints on the part of the customers that it has not been properly sized. These complaints are usually perfectly justified. In our opinion there are several causes of this falling off in the quality of the paper.

The alum in the hollander is one cause. If too much alum is put into the beating engine, the rosin sizing is weakened then and there, for the excess of alum redissolves part of the precipitated rosin, and the effect is at once manifested when the finished paper is wetted by ink. The longer paper containing an excess of alum lies wet before being calendered, the worse for the sizing. Hence, no more alum must be put into the hollander than is just enough to fully precipitate the rosin. Experience has shown that it serves for a rule that the back water must still be just acid. Theoretically, this shows too much alum, but in practice no less than will do. Papers in which the size, including alum, is properly distributed, never give any cause for anxiety that their impermeability to ink will suffer by damping.

Calendering too often makes the paper less impermeable to ink. No one will contend for a moment that calendering ever improves paper in this respect. The calendering has to be done with special care if the size contains much free rosin, or the impermeability will soon disappear. The reason is that the uncombined rosin is spread over the paper like a varnish-coat, which is cracked and broken by the squeeze of the calender rolls. The ink works its way to the paper through the countless microscopic fissures thus produced in the coating on the paper.

To prevent trouble, the impermeability should be tested occasionally at different stages of the preparation of the paper, e.g., on leaving the paper machine after damping for calendering, and after calendering, as well as after sorting. If this is done the stage at which the trouble arises can often be determined, and remedial measures taken accordingly. The testing should not be done with too mild an ink, and the paper should not be delivered to the customer unless it can be warranted as properly sized.

Paper-makers who possess appliances for sizing finished paper can, of course, easily remedy sizing defects occurring during the manufacture of the web. At the same time, this "after sizing" with animal glue is a tedious and expensive process, and must be avoided whenever possible. It is also likely to alter the color of a dyed paper.—Papier Zeitung.

CLEANING THE WIRES.

The seam in the wire is that part, which is most of all inclined to become filled, both in Fourdrinier machines and in cylinder moulds. The reason of this is sometimes, that too thick wire has been used for lacing the seam, or that the stitches are too close together and the meshes, seized by the lacing wire have been drawn together too tightly. Such a too close seam will cause streak across the paper, along which the paper is thinner and weaker, like in a water mark. Resin size and fibrous slime will collect readily in such a seam. Resin is best removed by washing the wire with light, practically pure oil of turpentine. Alcohol or benzine are less well suited, as they are too volatile and also too easily inflammable. If paraffin is to be used, it will be necessary to rinse the wire afterwards with a soda solution, because of the fattiness of the paraffin. Much filled meshes must be mechanically cleaned, by pulling a thin cotton thread with a needle through the single meshes. After such clearing out, however, it will always be necessary, to again wash off the wire.

Fibrous slime, which has collected in the seam or in the meshes of the wire in general, is removed by means of diluted sulphuric acid (one half acid, one half water) and a soft brush. After the treatment with sulphuric acid the wire is squirted with clean water and then submitted to a treatment with caustic soda solution, by which any still filled parts are cleaned.

Burning out the wire is a radical remedy, by which, however, the wire will easily become undulated and brittle. With twined wires this procedure is obviously impossible owing to the cotton threads. I, for my part, consider the burning out admissible only in case of rubber stains. A blowlamp is then used with a slight blast, and the rubber oozing out at the back is then absorbed carefully by blotting paper. (Also benzole will in such cases undoubtedly be of good service.—The Editor.

The washing of the wire may be postponed by letting a jet of steam act by means of a spray pipe during work on the returning thrum of the wire.

LAURENTIDE ISSUE.

Public announcement has been made that 2,400,000 new stock has been issued by the Laurentide Company at par to shareholders of record, July 23rd. Amounts are to be paid in instalments, covering a period of nine months. The present selling price of the stock on account of this new issue are worth slightly over $21.00 a share. The new issue has been put to finance enlargements in plant generally in the water power which they are devolping.

The company now owns upwards of 2,200 square miles, while it has another 5,000 to 6,000 miles contributory.

Laurentide's authorized capital is $10,000,000, so, with the new issue, the outstanding capital will be raised to within $400,000 of that amount. The only other capital liability is an issue of $1,200,000 bonds, but of this over one-quarter, or $321,801, had been redeemed by sinking fund at the time of that last annual statement a year ago.

How Company Expanded.

The Laurentide Pulp Company, Limited, ten years ago had a capital stock of $1,600,000, with a bond issue of $1,200,000. Subsequently as the Laurentide Paper Company, Limited, there was an issue of $1,200,000 preferred stock, to finance the new paper mills, and this preferred had the privilege of conversion into common stock, share for share. This conversion privilege ultimately retired the preferred stock. In 1901 a new issue of $800,000 common stock was made at par.

In the summer of 1911 the business of the Laurentide Paper Company, Limited, was acquired by the Laurentide Company, Limited, shareholders of the former company receiving two shares of stock in the new company for every one share held in the old. The effect of this was to bring the outstanding capital of the company up to $7,200,000.

The shares of the old company, which sold ten years ago as low as 70, had arisen to 230 in advance of the doubling up of the capital, and the maintenance of the dividend on the old 8 per cent. basis. Last summer the new shares, which were first traded in around 145, sold as high as 240, or equivalent to 480 for the original stock.

Net profits of the business, which in 1902 had amounted to $165,585 were $753,572 ten years later.

PAPER AND PULP UNDER THE MICROSCOPE

By SIDALL AND BACON

(Special Series of Contributions to Pulp and Paper Magazine)

CHAPTER VII.

Many applications of the microscope to the principles and art of papermaking continually reveal new points for consideration. We have already discussed its value for the examination of wood pulps, this being an apparently new development as far as the papermaking is concerned, since the manufacture of wood pulp has until quite recently been confined to the use of certain well-known species of wood.

The ordinary observations with the microscope do not need more than a passing notice in the present series of articles. Thus, as a matter of routine, one may quote the approximate estimation of the proportions in which two or more varieties of paper making fibres may be present in a finished sheet of paper, as, for example, the percentage of sulphite and mechanical in news; the percentage of esparto and chemical wood in a printing or book paper; the detection of traces of any particular fibre in a supposed pure rag paper. Indeed, it may be safely asserted that the use of the microscope is mainly confined to the examination of papers in order to determine their fibrous composition, though many interesting and valuable hints respecting the composition of the paper and the changes in structure, which go on from stage to stage, should ultimately prove more profitable.

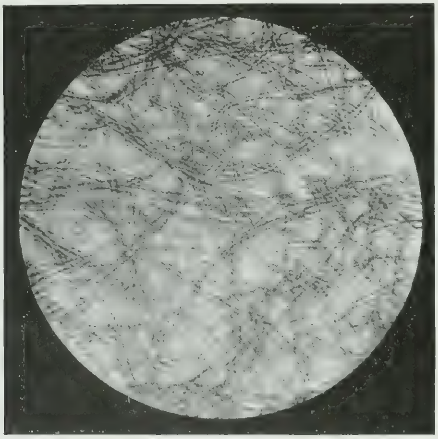


Fig. 1

We have shown in the previous chapter that the progress of beating and the reduction of the fibre to the condition required by the paper to be produced, can be watched very closely, and the gradual changes rendered visible by suitable microphotographs.

Structure of Paper.

The actual structure of a sheet of paper and the interlacing of the fibres may easily be shown by taking sections parallel with the surface and at right angles to the surface giving longitudinal and transverse sections respectively.

Fig. 1 represents the surface of a pure linen paper, machine made. This section has been obtained by cutting a tin section of the paper parallel with the surface and enlarging in the usual way by means of the microphotograph.

Fig. 2 shows a section of the same paper and the distribution of the fibres is very plainly seen. It will be noticed that the sheet appears to consist of four or five distinct layers superimposed one upon the other, by the action of the shake upon the wire, and the gradual filtration of the water through the mass of pulp and away from the wire. The magnification of Fig. 2 is 3½ times that of Fig. 1. One of the most interesting points in connection with the transverse section is to be seen at the top of the photograph, where one fibre stands out above the surface, illustrating the fact that even in a well-glazed sheet of paper it is impossible to get the paper sufficiently smooth so that all the fibres lies in the same plane. The crossing and recrossing of the fibres on the surface prevents the formation of an absolutely smooth surface.

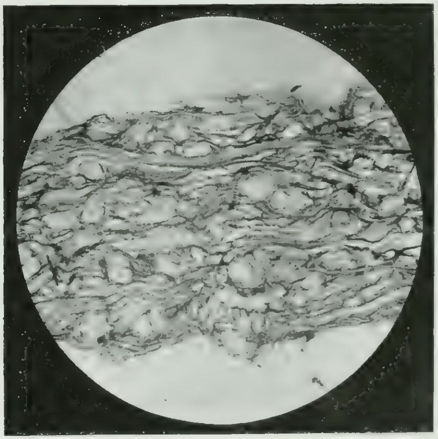


Fig. 2

Coated Paper.—A transverse section of an art paper affords a similarly interesting study. In the first place the microphotograph reveals very clearly the mass of mineral matter adhering to the surface of the paper, and it is possible from the magnification of the photograph and the actual thickness of the paper to calculate the thickness of the mineral coating itself. In Fig. 3 this is clearly shown. The paper selected was a chromo, coated on one side only, and machine finished on the bottom side. The paper had a thickness of 7.5 thousandths of an inch. At a magnification of 300, the microphotograph measures 2.25 in. in depth, of which 0.25 in. represents the amount of space occupied by the coating. The photograph thus determines the thickness of the coating and shows that in this particular case one-ninth of the actual thickness is due to the mineral coating on the surface of the paper. It may be noted that the slight crack shown in the photograph is due to the fracture of the coating which has occurred during the cutting of the section.

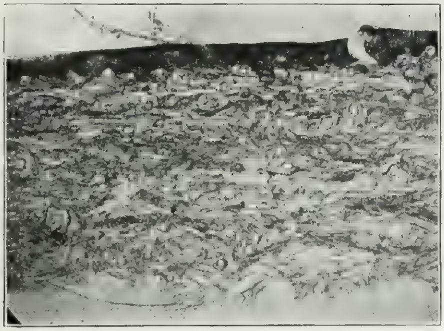


Fig. 3

NEW BRUNSWICK'S LEASE PROBLEM

The Government of New Brunswick surely owes the lumbering and pulp and paper industries of that Province greater consideration than it has apparently been giving them during the last few months. The revised regulations, which were recently drawn up in connection with the timber leasing situation, state that the holders of leases may elect to come in under the new arrangement or may continue under their old leases until 1918, when they will expire. If they wish to come in under the new regulations they must notify the Government before July 15th next. If they choose to adopt this course they must pay, by August 1st, 1913, one-half of the bonus which the Government may decide upon. Under these conditions, the industry had a right to expect that the Government would announce the amount of the bonus which is to be charged, at as early a date as possible, so that there might be ample time for consideration of the conditions, to enable operators to decide upon the course which would be most to their advantage. It is now only one month from the time when the holders of leases under the old system must make their declaration and six weeks from the date for the first payment on bonuses, yet they have no idea as to how much the Government will charge. Not only has the Government failed to declare its intention in this regard, but those who are interested have been unable to obtain information by interview with the Government which would help them in coming to a conclusion about the best course to pursue.

Naturally, those who hold leases which are to continue five years longer and who have not their plans fully completed as to what they will do at the end of that period, would like to know at once whether or not, if they fail to pay their money at the time stated and to make definite declaration, their interests will fail of any consideration at the end of the five-year period. The time of making the first payment upon the bonus is in August of the present year, and this is about the time when the lumbermen of last winter have demands almost to the limit on their finances, to close their previous year's accounts. Naturally it will be almost impossible for some of them, who would wish to take advantage of the new proposition, to raise the necessary funds with which to secure their lands.

All that has taken place of late in connection with the alteration in the system of leasing Crown Lands for timber in New Brunswick brings home forcibly, to those engaged in the industry, the objections connected with political administration of timber lands. However straightforward and well-meaning a minister of the Crown may be, the ordinary duties which devolve upon him in connection with his department are so great that he cannot give to such a matter as the lumbering industry the careful study which it deserves. There are many in the lumbering business to-day who would welcome a change that would remove the care of the Crown lands from politics and vest it in the care of a non-partizan commissioner. Under such management conditions like those existing to-day would be far less liable to develop. A Commissioner whose whole duty was concerned with the management of Crown lands would have given the matter more intimate study and would have foreseen more clearly the working out of new regulations to be adopted.

The lumbering and pulp and paper interests of New Brunswick are so extensive that the present situation is both unwise and uneconomical. A complete change has been made in the regulations of the department, and although this change is some months old the majority of the mill owners do not understand its conditions sufficiently to take advantage of any privileges which are to be obtained. The Government has undoubtedly intended well and sought to make changes which would give to the people of the Province as much as they are entitled to in the way of revenues from Crown lands, without injuring the interests of the lumbering and pulp and paper industries. Their efforts unfortunately have not met with approval or success. Happily, such policies are not irrevocable and it may be that the present situation is only a stage in the development of a system of Crown lands regulations which will, in the end, be satisfactory to all concerned. It is to be hoped that the Government will lose no further time in announcing the remaining conditions of its regulations. When this has been done, timber owners will be in a position to put their representations in definite form and to point out to the Government wherein the new regulations may have failed to work out to the benefit either to the industry or of the people of the Province.—Canada Lumberman.

ARCHITECTURAL APPEARANCE OF WAREHOUSES

The architectural appearance of a warehouse is something which often receives scant attention and sometimes presents real difficulties. Numerous examples might be given of buildings of this class where the aesthetic features have not been entireley neglected. Notable among thse is the warehouse of the Massachusetts Cotton Mills at Lovel, Mass., designed by Lockwood, Greene & Co., Boston, which has the appearance of the best class of office building. This result was obtained by brick paneling, the grooving of the surface of the concrete on the first three floors and a heavy concrete cornice.

A small amount of ornamentation in the way of simple mouldings, surface treatment of concrete, brick panels, or pilasters, adds materially to the appearance of the warehouse and the added expence is negligible.

MITSUMATA PAPER

By RALEIGH RAINES

Of all the Japanese papers probably the one mostly used in the export trade is the Mitsumata paper. There are at least nine plants from which papers are made in Japan, each species furnishing a different variety of product. Edgeworthia papyrifera is the botanical name of the Mitsumata paper plant, and the systematists place it along with the Daphne, among a number of forms with lace like bark, in the order thymelae. It is a pretty decorative shrub, with characteristically branching stems, broad light green leaves, and delicate yellow flowers which are borne in heads. Its forks are always composed of three branches, instead of two, as is common with other shrubs, and this character alone distinguishes it from any common shrub in cultivation. Its very name is descriptive for the word "mitsumata" means three-pronged, and its botanical name was given in honor of Mr. Edgeworth a noted botanist of India who first described its commercial possibilities. It is sometimes grown in Japan for its decorative flowers alone, and many of the official residences have it planted within the grounds and bordering the house walls as an ornamental plant. Scarcely over five feet high, it has as a result of its peculiar branching habit, a characteristic vase form. Owing to the fact that in the cultivation of the plant it is continually pollarded near the surface of the ground, it is difficult to state just what the plant would develop in the way of growth if left alone. The light brownish gray bark is thick and lace-like as a piece of tapa, and it can be easily spread out with the fingers into a web-like rough fabric. The shrub bears small fruits in clusters and are about a quarter of an inch in length, each fruit contains inside the thin layer of flesh, a sharp-pointed, shiny black seed, with a thin shell and milk white contents. Early in June in Japan, children not over eight or nine years old are sent through the plantations with blankets to pick the ripe fruits of the mitsumata. The plant produces seed sparingly, so that the work of collection is much like picking wild berries in this country, but probably it is far more irksome, for instead of being palatable the mitsumata seed has an exceedingly disagreeable taste. The seeds with their thin green flesh are spread out in the weather until the flesh has rotted away, leaving the black seeds which are packed in a sack made from the sheath of the native palm. The meshes of this natural sack are fine enough to prevent the seeds from falling through and still permit of sufficient ventilation. In this form they are buried in a hole in the ground under the shelter of an overhanging roof or else stored in some building and kept until planting time the following February. The price of this seed varies in localities, ranging from thirty cents to $1.50 per gallon. In the middle or toward the last of February the seed bed is prepared and the seeds are planted in rows a foot or more apart, where they are given the usual care of weeding and cultivation, and in this condition they remain for one year until they are 8 or 9 inches high. These young plants are then set out on the hillsides, after the ground has been prepared for their reception by working over with a mattock or fork. The young seedlings are placed at the rate of 20,000 to 24,000 per acre, or about a foot and a half apart each way. On the hillside plantations shelter trees of alder are planted 20 or 30 feet apart in order to help bind the loose soil, the dead leaves forming a mulch, and the branches forming a windbreak, preventing the winds from whipping the young shoots of the mitsumata plant. Two or three cultivations are given each year to keep down the weeds and loosen the soil, and by the end of the first year after transplanting the first harvest of bark is ready. In the provinces of Shisuoka, Nogane, and Fatteri are quite extensive plantations of mitsumata, and the areas are steadily increasing in order to meet the demands of the fibre. As a rule the plantations occupy land which is not fit for rice growing, such as hillsides too steep for terracing and valleys too narrow to make rice culture practicable. The harvesting is done any time in the winter, and consists merely in cutting down the plants almost even with the ground by means of a heavy knife, binding the minto bundles, and transporting them to the farmhouse. Though the tops are cut down every other winter, the roots of the mitsumata plant remain alive for many years—sometimes for a hundred years—but for commercial purposes the stumps of the plant cease to produce profitable crops of new shoots after ten or twelve years, when they are dug out and young plants set in their places. It usually requires two years for an old stump to produce a marketable bush sprout, and many of the plants are allowed three or four years to grow before being cut. The crop would naturally be biennial instead of annual, but owing to the fact that some of the plants have to be replaced earlier than others a field of mitsumata soon comprises plants of various stages of maturity which permits cutting every winter. From 600 to 2,000 pounds of raw bark per acre are produced by this plant, and which made into pulp it is worth in Japan from 15 to 16 cents gold per pound, or about four times what the wood pulp imported from America sells for in Japan. The bark is removed from the cut shoots of the mitsumata plant by the peasants or laboring classes, who soak the shoots in hot water and strip the bark off by hand. The bark slips off easily and leaves a clean branch of light porous wood suitable for fuel. Small paper factories are scattered along the banks of the picturesque stream in central Japan, and the broad drying boards covered with sheets of fresh paper are common sights in many of the mountain villages. The freshly stripped bark is macerated in vats of warm water and the thin outer bark is removed by scraping with a dull knife. The purity of the paper depends in a large measure upon how thoroughly this dark bark is removed, for any small particles that are overlooked in the cleaning make dark flecks in the paper and reduces its value correspondingly. After cleaning these soft spongy strings of bark are thrown into a vat filled with caustic soda, and are left to macerate thoroughly until the fibres can be easily separated from each other. The macerated bark is then pounded, either in a stone mortar with a heavy wooden mallet or by means of a stamping mill run by water power until the fibre is a homogeneous pulp. It is then mixed with water, bleached with chloride of lime, and placed in a large vat, from which small quantities are taken by the hand screens which the operator uses in making the sheets of paper. A mucilage made by macerating the root of a species of hibiscus is added in small quantities to the pulp to make the fibres stick together. The amount of this mucilage used depends upon the experience of the operator, as no exact proportions appear to be the rule. One woman can make by means of her bamboo hand seive, 600 sheets of paper in a day, and according to prevailing prices, this medium quality of paper sells for 94 cents per hundred sheets. The operator is very skillful in making the paper, and it is interesting to see her lift from the vat a screen half full of thin pulp, poise it and shake it for a second or two, allowing the water to drain out for a few moments, then quickly lift the screen and inverting it, lay it flat down on the pile of previously made sheets. Then she gently and slowly lifts the seive and leaves a thin layer of wet pulp upon the continually increasing pile. With a hand press the water is squeezed from this pile of wet papers, the individual sheets are stripped off one by one, brushed out on smooth boards with brushes similar to those used by the paper hanger to spread paste on wall paper, and are then placed in the sun to dry. After this simple process the papers are packed in bundles and transported by pony or bullock pack animals to the nearest market. This hand process of manufacture is almost as old as the country and there are families engaged in paper making for generations back, as are towns and villages that have been the center of this industry for perhaps centuries. Of course, all the paper is not hand made, for paper making machinery has been introduced in several of the paper making centres. Though machine made mitsumata paper of the finer grades is chiefly manufactured for export to America and European ports. These machines are rotary, steam heated drums for macerating the pulp with caustic soda, and the regular pulping tanks for separating the fibres and in which the bleaching process is conducted. In the majority of paper mills, however, the same hand seives are employed by the operators in making the sheets from the vats of pulp, so that most of the papers using the bamboo seive process may still be classed as hand made. The laborers who work in separating the inner bark from the outer bark usually receive about ten cents gold per day, and while machinery could and probably will in time be employed in this work it is doubtful if a higher grade of work can be done more cheaply than the laborer performs by handwork. These bast papers are stronger and more durable than the papers used by the western world, and they are infinitely cleaner and more sanitary. From this mitsumata pulp are manufactured the remarkable oil and leather papers which are known only in Japan. The many paper novelties which originated in Japan are also made from this same paper, and includes the oiled tissue, and wrapping papers, as well as the oiled papers from which clothing is made. It is with these bast papers that the Nippon has solved many of the household problems and thus enables the farmer and peasant to possess many of the conveniences which in other countries people in moderate circumstances are compelled to do without. The mitsumata plant is capable of being cultivated in the Southern States with equal success as in Japan, and so far the plant shows a disposition to thrive in North Carolina and in California. That there are great commercial possibilities in the cultivation of the mitsumata plant is the belief of many who have given consideration to the matter of paper production, a question which is daily becoming more and more one of common interest.

PAPER CARPETS.

An American patent recently issued relates to paper carpets. Mr. G. H. Davis, of Portland, Me., the patentee, says the invention has for its primary object the provision of what may be properly styled a paper carpet, which, owing to its efficiency and the cheapness with which the same may be manufactured and sold, may fill a long-felt want or enter a field of service not heretofore contemplated in floor coverings, and may also, to a considerable extent, supplant the ordinary linoleums, oilcloths, straw mattings, and, in fact, the cheaper grades of cloth carpet. The improvements on previous floor coverings of cloth and paper and such like, may be defined as embracing a carpet, the body portion of which is constituted by paper of the necessary density and thickness, provided with stiffening or reinforcing means enabling the same to be securely tacked in place to restrict the possible tendency of the paper to tear away from its fastenings, and the same possessing as inherent or as auxiliary features, means for maintaining the strips in straight or true condition which might otherwise arise from undue shrinkage, warping, etc. The under side of the paper carpet may be left plain or printed if desired to represent cloth or burlap. The upper or exposed surface of the paper is printed in keeping with the use for which the carpet is designed, such printing being preferably in bright fancy colors of any suitable material, not oily in its nature, presenting a durable tough surface overlying and protecting the fibre of the paper, subsequently varnished, and finally buffed down to subdue or modify the lustre of the resultant product. If desired, several thicknesses of the muslin reinforcing strips may be utilized to prevent stretching and maintaining the shape of the carpet, and to enable the carpet to withstand the pulling action on the securing tacks, while throughout the entire marginal edges of the carpet such edges will be preserved against any fracture or breakage which might be incident to a tripping or kicking action of the foot.

LOADING MATERIALS FOR CARDBOARD.

As in papermaking, so also in the manufacture of cardboard, loading substances find extensive use. In this case, too, a saving of fibres and increase in bulk are sought. A further purpose is the attainment of greater hardness, strength and stiffness of the cardboard, as for instance in stencil-board. The loading material and its employment in the proper proportion are consequently of importance to the quality of cardboard.

Clay finds most extensive employment, gypsum being less extensively used. The quality of the first named, which is known as kaolin and china clay, is mainly governed by its purity. Clay enjoys the preference because the largest quantity of it is retained.

The necessary quantity of clay or gypsum is mixed with water and poured into the beater through a sieve. Usually, however, the clay is boiled with starch, because then, without detriment, a larger quantity of the stuff can be added. Large quantities of loading make the cardbord soft and ragged, but this evil may be remedied by heavier additions of starch.

In order to retain the largest possible percentage of loading in the cardboard, some mills, according to Papier Zeitung, boil it with rosin size, others allow the loading substance to be ground in the edge-mill with the paper waste. The grinding of the pulp also exercises an influence on the amount of loading retained. The more smeary the pulp, the greater the retention of loading substance and the better results. Starch alone is also frequently added to the pulp which when boiled should be clear and slippery. The use of starch, dry and unboiled, results in too much loss in the sand trap and screen chest.

Another loading material, that is added only to inferior kinds of cardboard, is the sedimentary clay recovered in the settling tanks from machine and manufacturing waters, and this, in large establishments, can effect a material saving in raw material.

THE OXIDATION OF ROSIN

At a meeting of the Verein der Zellstoff und Papier Chemiker, Professor Klason, of Stockholm, described the results of some experiments he carried out with the oxidation of rosin in sunlight. Powdered rosin was exposed for several weeks to the action of air and light in the summer. It was subsequently found to have increased in weight by 8 or 9 per cent., owing to the absorption of oxygen. During the early stages of the exposure small quantities of a peroxide could be detected in the rosin, but this peroxide never became very great, and at the end of the experiment it had totally disappeared. In this respect the oxidation of rosin is very similar to the oxidation of oil of turpentine under the same conditions. The oxidized rosin had changed very little in appearance, but it had become rather less soluble in petroleum ether than before. It showed the property of darkening gradually in the presence of small quantities of basic substances. In another experiment filter paper was steeped in a solution of rosin in chloroform for three months. The exposure did not affect the tensile strength of the paper, but the latter had become slightly more brittle. Of course, this paper contained far more rosin than ordinary engine-sized paper. When rosin-sized paper is stored in the dark no oxidation of the rosin takes place, but when it is unpacked and exposed to light the rosin oxidizes very rapidly. Once this oxidation has taken place no further changes occur, but if the paper contains even traces of basic matters it gradually darkens in color. Excessive sizing of paper with more rosin than is absolutely necessary should be avoided, because such treatment tends to favor discoloration, and to make the paper slightly more brittle. The Professor does not think that the fear, sometimes expressed, that rosin sizing will ultimately destroy the paper after a century or so, has any real foundation, but paper containing little rosin certainly preserves its color better than hard-sized paper.—World's Paper Trade Review.

PAPER DURING THE 17TH CENTURY IN GERMANY

The first newspapers were printed in Germany in the beginning of the 17th century. One might have thought that the consequence was a rapid increase in the manufacture of paper. But the 30-years' war brought the development of the paper industry to a sudden stop. In 1632 all paper mills in the neighborhood of Nuremberg were destroyed by fire. Only 10—20 years after the end of the war the re-erection of the destroyed paper mills seems to have been decided. Owing to the stagnation in all industries during the war there existed for a long time after a great want in rags, and the papermakers had many quarrels as to the districts within which they were allowed to collect the rags. Almost during the whole of the 17th century pool mills were employed for desinegrating the rags. The beating engine was an originally German invention, which found a great introduction in Holland during the 17th century and only afterwards was generally adopted in Germany. Owing to the above mentioned stagnation in the manufacture of paper in Germany, much paper was introduced from Holland, France, and England, where the industry could develop in an undisturbed manner. Also Switzerland supplied much paper to Germany during this period. In particular the paper mill in Zurich enjoyed an excellent renown and owned the monopoly of gathering rags within the whole range of the town of Zurich. This monopoly was misused to export the good rags and use the bad ones at home. Therefore the papermaker was threatened in 1688, that his monopoly would be cancelled, if he continued to sell the good rags abroad. The council of the town of Zurich exercised a severe control as to whether the paper was made of good materials. For further controling the paper, it had to be made with a water mark representing the armorial bearings of the town of Zurich.—Der Papier Fabrikant.

NORTHERN ONTARIO FIRES

Special to Pulp and Paper Magazine.

Ottawa, Ont., July 10.

J. R. Booth and other Ottawa firms are among those who have lost as a result of the forest fires which swept Northern Ontario last week. It is still impossible to say with definiteness what the loss is, but the Booth firm expects that a considerable portion of its limits on the Canadian Northern line in the fire belt was involved in the blaze. Mr. P. C. Walker, of the Shepard & Morse firm, stated that the fire had reached the fringe of the limits owned by that company on the French river. The district affected, according to residents who have reached the city, is principally a pulpwood one, farmers in that part of the country generally being able to count on the price of the pulpwood they sell to defray the cost of clearing their land.

A number of new amendments to the original order of the Railway Commission in regard to railway fire protection were discussed and approved of at a meeting of the Board last week. The most important amendment and the only one to which the railways raised any objection, was that limiting the extent of territory on either side of a railway track within which railways would be responsible for fires, to 300 feet. To this Mr. Flintoff, for the Canadian Northern Pacific, objected that it would make "beautiful ammunition for a jury trial." In reply Chairman Drayton pointed out that up to the present railways might have been held responsible for an unlimited stretch of territory which was now defined. Several other amendments of a technical nature were passed.

MACLAREN WILL HAVE CRUISE

Special to Pulp and Paper Magazine.

Ottawa, Ont., July 13.

That Canadian pulp and paper men are beginning to go seriously into the great question of forest conservation and reproduction is evidenced by a contract which has just been let by the MacLaren Company, a lumber and pulpwood firm with headquarters on the Lievre River. They have engaged Vitale and Rothesay, forest engineers, of New York, to cruise and report on their immense limits on the Lievre, which total about 2,700 square miles, half of it virgin timber. This is said to be one of the largest contracts of this kind yet let.

Mr. Julian Rothesay, who will direct the work with about forty assistants, was in Ottawa on his way to begin operations which he expects will last about a year and a half. He is a Yale graduate and was a classmate of Mr. G. Piche, head of the Quebec forestry service, and of Mr. H. R. MacMillan, director of that of British Columbia. He stated he expected to report, besides the amount of timber contained in the limits, on their reproductive qualities and the amount which could be safely cut from year to year to allow of conservation and new growth.

BOVING COMPANY OF CANADA

A New Pulp and Paper Machinery Plant for Canada.

The business of The Canadian Boving Company is now being operated under the title of Boving & Co. of Canada, Limited, in order to bring the style into line with that of the other branches of Boving & Co., Limited, London, which are operating in Japan, New Zealand, Brazil, Mexico, etc. Owing also to the great increase in the volume of business and to their having purchased the works of the Madison Williams Manufacturing Co., of Lindsay, Ont., the capital of the company has been increased to $1,000,000, a portion of the first issue having been found in Canada.

They are, therefore, now in a position to turn out in their Canadian works the following machinery:—

Water Turbines.
Centrifugal Pumps.
Pulp and Paper-making Machinery.
Sawmill Machinery.

—of which machinery they have previously been making the centrifugal pumps in England, and the water turbines, pulp-making and paper-making machinery in Sweden, while the saw mill machinery has been manufactured by the Madison Williams Co. in Lindsay.

The Canadian Boving Company, Limited, completed their first large plant in 1910, viz., water turbines of some 8,000 h. p. for The Calgary Power Co. and other important contracts which have since been executed are:—

	H. P.
City of Winnipeg—	
5 Double Horizontal Open Flume Francis Turbines.	29,000
2 Double Horizontal Enclosed Francis Turbines (Exciters)	900
The Sydney Power Co., Trenton, Ont.—	
4 Double Vertical Open Flume Francis Turbines.	6,000
4 Double Vertical Open Flume Francis Turbines.	4,800
Chicoutimi Pulp Co., Chicoutimi—	
2 Double Horizontal Enclosed Francis Turbines.	8,000
Town of Farnham, Que.—	
2 Double Horizontal Open Flume Francis Turbines	1,130
Town of Welland—	
1 Turbine	250
St. Francis Hydraulic Co., D'Israeli, P.Q.—	
1 Double Horizontal Enclosed Francis Tusbine.	1,600
Carillon Construction & Development Co.—	
1 Turbine.	300
City of Penticton—	
2 Turbines.	380
Ocean Falls Pulp Co.—	
6 Single Horizontal Enclosed Francis Turbines.	10,800

Centrifrugal Pump Contracts—

City of Toronto.	Capacity per 24 hours.	Head.
4 Pumps.	54,000,000 gals.	250 ft.
4 Pumps.	40,000,000 gals.	100 ft.
Nipissing Mining Co.—		
1 Pump.	6,000,000 gals.	415 ft.
1 Pump.	220,000 gals.	319 ft.
Montreal Water & Power Co.—		
3 Pumps.	31,000,000 gals.	440 ft.
City of Welland—		
1 Pump.	3,300,000 gals.	290 ft.
Delta Municipality—		
1 Pump.	500,000 gals.	228 ft.
City of Moose Jaw—		
2 Pumps.	1,700,000 gals.	69 ft.
2 Pumps.	1,700,000 gals.	120 ft.
E. B. Eddy Co., Hull—		
1 Pump.	3,000,000 gals.	55 ft.
1 Pump.	1,250,000 gals.	70 ft.
City of Prince Albert—		
2 Pumps.	1,100,000 gals.	44 ft.
Town of Preston—		
2 Pumps.	750,000 gals.	185 ft.

They have also installed a considerable amount of pulp-making machinery.

The experience gained during the past three years by The Canadian Boving Co. has enabled them to gauge the Canadian market, to familiarize themselves with what is actually required by and most suitable for that market, and by reason of their having let out contracts for various details of plants to Canadian firms they have been able to form an accurate idea of the cost of manufacturing such plants in the Dominion.

Their company is working in close alliance with Boving & Co., Limited, Union Court, Old Broad Street, London, England, to whose designs their machinery will be manufactured with such modifications as may be necessary to suit Canadian requirements.

Boving & Co., of London, England, have carried out some of the largest Hydro-Electric contracts, including work for:—

The Brtish Aluminium Co., Ltd., London.
The Waihi Gold Mining Co., New Zealand.
Mt. Lyell Mining & Railway Co., Tasmania & London.
Hydro-Electric Power & Metallurgical Co., Tasmania.
Kinguawa Hydro-Electric Co., Japan.
The City of Kyoto, Japan.
The Sagami Hydro-Electric Power Co., Japan.

The Governments of Western Australia, New Zealand, Egypt, Soudan, India and others, and the London County Council, while they are also on the Admiralty and the India Office List for the supply of Hydraulic Machinery.

The existing works are quite up-to-date, having been built in 1906. Large additions, however, will be made to them immediately, so that in twelve months' time the capacity of the works will be about four times that of the present shops, and a number of new and up-to-date machine tools will be added, so as to ensure the most accurate workmanship now required for modern machinery. Furthermore, they will be in a position to give very prompt deliveries and possibly improve on their prices, whilst maintaining the same high standard of efficiency and design which has always been their aim.

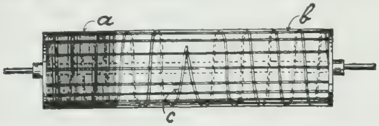
The manufacture of sulphite alcohol in Sweden is increasing, but not so rapidly as might be expected. During the first ten months of the year about 1,000,000 gallons of 50 per cent. alcohol was distilled. The uncertainty of production of sulphite alcohol, when manufactured on such a large scale has presented capital from starting new plants. The question of using the sulphite alcohol as fuel for motors is not yet solved.

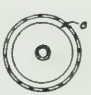
NEW PATENTS

All patents are specially compiled for the PULP & PAPER MAGAZINE. Those of United States are by Davis & Davis, Patent Attorneys, Washington, D.C. Full particulars with drawings may be had by addressing the Commissioner of Patents, Washington, D.C., enclosing five cents per patent. Canadian patent particulars may be obtained from the Patent Office, Ottawa. In all cases give number of patent. We also carry brief descriptions of important English, French and German patents

COUCH ROLL FOAM REMOVER.

A side view of a couch roll, with the covering partially removed, is shown in the accompanying illustration in Fig. 1, a cross-section of the same roll being shown in Fig. 2. In the couch roll b, which is covered with screen-cloth a, a sheet metal spiral c is incoruorated, which, as will be seen from Fig. 1, follows a spiral course from the center of the roll in opposite directions toward the ends. Couch rolls on paper machines must frequently be removed for cleaning out the foam that collects in their interior and speedily clogs the screen-mesh. The method of construction here shown, by means of the sheet metal strips, retards the clogging of the meshes of the couch roll and facilitates cleaning. The spirally disposed metal strips on the inside of the roll, facilitates the automatic movement of the foam that collects inside the roll, to the open ends, where it is discharged.





STRAINING WOOD PULPS.

The accompanying illustration relates to an apparatus—patented in the United Kingdom by Mr. Franz Hellhummer, of Letea Paper Mills, Bacan, Roumania—for sorting or straining wood pulp, comprising a drum or travelling band having strips or beaters thereon of caoutchouc or the like, extending from end to end of the drum or from edge to edge of the band, and a strainer over which flows a continuous stream of material to be treated, the strainer being adjustable in order that the strips or beaters shall press thereon with more or less force.

Fig1

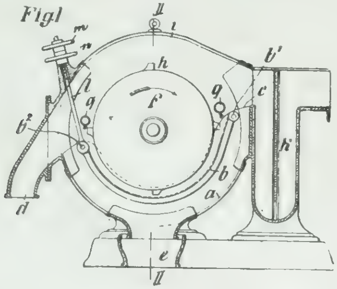
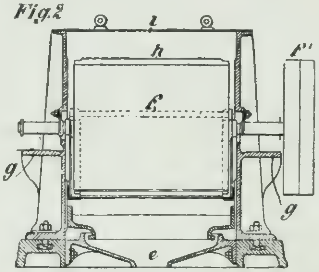


Fig. 1 is a vertical section taken through the inlet and the outlet of the improved machine, and Fig. 2 is a cross section of Fig. 1.

Fig.2



The coarse wood pulp or stuff enters the trough at c. The useful stuff is squeezed through the strainer b by the bars h as they pass over the strainer; it is discharged through the outlet e. The coarse particles such as splinters and the like are carried along by the bars h and discharged through the outlet d. The degree of fineness of the particles of wood pulp passing through the strainer b may be regulated within certain limits by adjusting the strainer b more or less closely to the squeezing device f, h.

Improvements in or relating to Retorts for the Dry Distillation of Wood.—F. Sykes, Chemical Works, Bideford, Devon. British Patent, 12,257. According to this invention a retort for the dry distillation of wood comprises in combination a plurality of separate annular retort chambers having communicating conduits between adjacent chambers to permit the wood to be passed in succession through all the chambers, means to move the material in and through the chambers, a central outlet for the escape of the distilled gases from all the chambers, a gas seal co-operating with the discharge orifice of the lowermost chamber, and a surrounding furnace chamber providing external heating for retort chambers. A feature of the apparatus consists in the construction of a gas-seal comprising in combination a base or cover plate for the last retort chamber in the series, and having in it a single discharge slot, a drum or chamber connected with the base plate having a member rotating therein in contact with the base plate and supporting separated chambers open at both ends, which may be successively brought into register with the discharge slot in the base plate, and subsequently with a discharge opening in the drum or chamber. A further feature consists in the provision of an adjustment for a shaft common to all the rotating parts whereby it may be axially adjusted.

Improved Preparation or Compound for Utilizing the Waste Residue or Sludge from Paper Mills Sewerages and the Like.—Levi Towler 48, Brougham street.

Stoney Holme Burnley and Lucas Towler, 33 Merton street, Burnley. British patent 2,682. August 1st, 1912. This process relates to an improved compound for utilizing the waste residue from paper mills and sewerages, and the preparation of the same into a combustible material. Powdered lime and powdered resin are mixed with sludge in the proportions of sludge 1 ton, lime 1 cwt., and resin ¼ cwt.; or in some cases with the addition of 2 cwt. of coal dust. The mixture is forced into the press and formed into cakes by considerable pressure to eliminate the water. The cakes after drying by heat are dipped into a hot mixture of creosote oil, paraffin, and resin, and finally broken up into small pieces for use as a substitute for coal.

COLORED PAPERS MADE OF COLORED PAPER-WASTE.

The paper waste is charged with various salts into the digester, and heated therein with as little water as possible and without pressure. It is advisable to let the digester revolve for a while. Another possibility is to charge the salts into the beater and heat the contents of the latter well for half an hour. It is impossible to produce white or light grey stuff from waste paper, if any profit is to be made. Salts suitable for the above purposes are chlorides, carbonates, sulphates, bi-sulphates, sulphides, sulphites, bi-sulphites and mixtures of these.

CONTROVERSY ON PAPER BETWEEN TWO AND ONE-HALF AND FOUR CENTS.

That the provision of the Underwood Tariff Bill levying a duty of 12 per cent. ad valorem on print paper valued at more than 2½ cents a pound and not more than 4 cents a pound, may repeal a portion of the Reciprocity Act of 1911, is contended in the analysis of the measure prepared under direction of Senator Smoot, Republican member of the Finance Committee. If it does not operate to repeal the law, it is contended that there will be two rates in controversy on this grade of paper.

Besides the duty of 12 per cent. ad valorem, the bill would impose a countervailing tax in retaliation for export license fee or other charge imposed by a foreign country.

"An interesting point to consider," the Smoot analysis sets forth, "is the effect of the enactment of this paragraph on the portion of the Canadian Reciprocity Act which admits to entry free of duty paper imported from Canada valued at not more than four cents a pound. With respects to printing paper valued at more than 2½ cents and not more than 4 cents per pound, it is manifest that there is a complete repugnance between the two statutes, for, by the terms of one, the Act of 1911, it is free of duty, and by the terms of the Tariff Bill, it is subject to a duty of 12 per cent. ad valorem. Nor can the two statutes be so construed as to stand together. Under such circumstances the rule of law is that the statute of later date must prevail over the earlier statute, as being the latest expression of the legislative will, and that consequently the earlier staute stands repealed by implication."

CORK PAPER AND ITS USES.

Enormous quantities of cork are used annually for making tips on cigarettes. For this purpose the cork is converted into very thin sheets which constitute what is known as cork paper. These sheets are exceedingly thin and come in the market 4¼ inches in width and 6, 7, 8, 9 and 10 inches in length. A package of about two hundred and fifty sheets is scarcely an inch thick. Practically all the cork paper that comes to this country is entered through the New York custom house and is valued (including 30 per cent. duty) at about $300,000 annually. It is estimated that approximately one-half million dollars worth of cork is converted into cork paper every year, and almost all of this is used for making tips on cigarettes.

The thin cork is pasted on long sheets of paper, which are passed between rollers and automatically covered with paste, while girls with deft fingers lay on the cork and smooth it down as the paper passes along. After this the sheets are passed through the cutting machines in which they are divided into eight strips one-half inch wide and wound on reels for use in the automatic cigarette tippers. Each of these machines has a capacity of 10,000 sheets of cork paper a day. The total number of sheets used in the world is about 100,000,000, or about a quarter billion square feet. The cigarette tipping machines have a capacity of about 60,000 cigarettes daily. The cost of the finished tips to the cigarette manufacturer is from 9 to 20 cents a thousand. —Scientific American.

THE CLEANSING OF SULPHATE PULP.

It has been pointed out that by using a battery of blow tanks to systematically wash the liquor out of the pulp this can be done with the least expenditure of water and the highest cleansing effect. Incidentally, this is one of the best methods for doing away with the very objectionable odor of the sulphate pulp mill. Pulp is blown under pressure from the digesters directly into the blow tanks, the battery being used in counter current system for washing. The small expediture of water leaes a minimum of water to be evaporated, and hence produces economies in this end.

MONTREAL DAILIES CHANGE.

Great changes have been effected very recently in Montreal daily papers; changes of ownership and managers; changes in the papers, staff and the policies of the papers which will be far-reaching. As previously announced in The Pulp and Paper Magazine, the Montreal Herald has been acquired by D. Lorne McGibbon and his associates will in future be run as a conservative paper. They have in future be run as a Conservative paper. They have also purchased this week the weekly illustrated paper, the Saturday Mirror, which is issued as a Sunday edition of the Montreal Herald.

Montreal Daily Witness has also changed hands and has been published since Saturday, July 12th, under the name of the Daily Telegraph, in greatly enlarged and improved form. The Hon. W. S. Fielding, former Finance Minister of Canada, and Hon. G. P. Graham, former Minister of Railways and Canals, are closely associated with the paper. Mr. Gordonsmith, former managing editor of the Witness, will be managing editor of the new daily.

A new Daily Mail, which will also be issued instead of the Times, as originally planned, will be established on Beaver Hall Hill, near La Tour street. It will appear in October instead of August 1st, as formerly expected. This will be an additional Conservative morning paper.

MATERIALS USED IN SIZING.

A new book on sizing materials is off the press, by W. F. A. Erman, M.A., Lecturer to the Manchester School of Technology. Its treatment is practical and exhaustive and useful to the mill chemist. All the various sizing materials are dealt with.

D. Van Nostrand Co., 25 Park Place, New York. Price $2.00 net.

UNITED STATES NOTES

Special to Pulp and Paper Magazine.

The Ohio Boxboard Company, of Cleveland, Ohio, has amended its charter and made an application for an increase in capital stock from $700,000 to $1,000,000.

The Kaukauna Paper Novelty Company, of Kaukauna, Wis., will soon be ready to begin the manufacture of paper novelties in its factory in that city. The machinery that is being installed in the new factory consists of one crepe machine, two toilet machines, one air press, one core machine, and a twenty century trimmer. The company will begin operation with the manufacture of toilet paper, crepe towels and specialties.

The Latterner-Parsons Paper Company, of Chicago, Ill., has filed an application with the Secretary of the State for a charter with a capital of $8,000. The new company plans to buy, sell and deal in paper and other commodities. The incorporators include C. W. Latterner, J. T. Parsons and H. R. Baldwin.

Mill No. 5 of the Union Bag & Paper Company, at Glens Falls, N.Y., resumed operations on July 1 after being down for a week for repairs. It was originally planned to have the plant closed for two weeks, but the repairs were completed sooner than was anticipated.

The big coating plant of the Watervleit Paper Company, at Watervleit, Mich., which has required nearly a year's time to build and equip, commenced operations on July 1. The start was made with only one of the six machines, as all of the electric motors that will be required to run the plant have not yet been installed. Three of the four super-calenders are now in operation, and the fourth is in the course of erection.

The Analomink Paper Company at North Water Gap, Pa., has begun moving the machinery from its old mill to the new one, which has been erected across the street. The new building will be used as the finishing department, while the old structure will be devoted to preliminary work in the manufacture of paper.

The Vernon Company has been incorporated at Portland, Maine, for the purpose of dealing in paper. The capital stock is recorded at $10,000, $300 of which is paid in. The officers are: President, Ardon W. Coombs, of Portland; treasurer, Charles H. Tolman, of Portland; certificate filed.

The Kennesaw Paper Company's mill at Marietta, Ga., has been sold at public auction to J. N. Goddard for $89,000. C. H. Page bought the electric light plant, this being a part of the property of the former corporation owning the paper mill, for $16,000, and the old waterworks plant for $15,000.

Extensive alterations are being made at the plant of the Michigan Paper Bag Company at Jackson, Mich. The roof of the main building is being removed to permit another storey to be added. Several new paper machines will be added to the equipment, permitting the output to be increased by over 50 per cent. The output of paper sacks is distributed by the company, while the paper made is handled by jobbers.

A petition to have J. C. Broklebank & Co., 209 South La Salle Street, Chicago, Ill., declared a bankrupt has been filed in the United States District Court. The liabilities of the firm are said to be about $40,000. The petitioners and the amounts are: Combined Locks Paper Company, Appleton, Wis., $16,851; Remington-Martin Company, Watertown, N.Y., $21,336, and the Consolidated Water Power Paper Company, Grand Rapids, Mich., $2,212.

The Sheehan Felt Press Roll Company, of Green Island, N.Y., was incorporated last week, with a capital stock of $100,000, to manufacture felt press rolls and papermaking machinery. The directors are: W. S. Crandall, of Green Island; William E. Sheehan, of Albany, N.Y.; A. H. Bogan, of Jersey City, N.J., and Edward G. Doyle, of Cohoes, N.Y.

The mill of the Whiting-Plover Paper Company at Stevens Point, Wis, was closed down several weeks ago to make extensive improvements. The changes which are being made include the raising of the roof on the machine room; new concrete floors put in the entire plant; a new water system and, later, a handsome office building. The improvements will cost in the neighborhood of $100,000, and will not be completed before fall. Many of the men employed in the mill have been given positions in construction work.

James G. Taylor, president of the Taylor-Burt Paper Company, who has been living in New York City for several years, has purchased the residence of A. H. Morton, formerly of the Valley Paper Company in Holyoke, Mass, and will move there with his family in the near future. Mr. Taylor was until eight years ago employed by the Hampshire Paper Company, of South Hadley Falls, Mass., and about seven years ago he organized the Taylor-Burt Company. Two years ago he married the daughter of ex-Mayor James T. Hogan, of Worcester, and since that time Mr. and Mrs. Taylor have been living on Riverside Drive, New York City.

W. R. Hearst, the American publisher, has given up his claim to the ownership of Bombazee Rips at Borridgewock and the long-pending controversy is over at last. The Bombazee Water Power Company was formed some twenty years ago, land being acquired on both sides of the Kennebee River and at the rips. In 1899 all the shares of stock were sold to W. R. Hearst, there being an agreement in writing that the development of the power should be commenced within a reasonable time and be completed within a reasonable time, and that in case of failure to carry out such agreement the property should revert to the former owners. There were various reasons ascribed for the action of Mr. Hearst in acquiring this property, and it was rumored that it was to be the site of a big paper mill. However, no development took place, and, after a lapse of six years, the former owners retook possession.

claiming title by forfeiture of contract. Suit was brought and the case was bitterly contested. In April a decision was rendered in favor of the plaintiffs, from which an appeal was taken. The matter was in order for hearing at the Law Court session in Bangor a few days ago, but the court received a statement from counsel for Mr. Hearst, announcing that his client had decided not to prosecute his appeal.

BRITISH TRADE NEWS

Special to Pulp and Paper Magazine.

London, July 5, 1913.

There is considerable unrest prevailing just now in the paper industry of the United Kingdom between "capital" and "labor," and so far the Paper-makers' Association of Great Britain and Ireland have done very little to relieve the situation. The employes in the mills want to cease work shortly after noon on Saturdays, so that they may have a week-end off work, and they contend that such a stop would not curtail the output of the mill. They are also agitating for time and a half pay if they are required to work after noon on Saturdays. Some employers have granted these concessions and others have not, and therein lies all the difficulty. To make matters worse the mills in the South of England are not so anxious about the week-end stop question as the mills in the North of England, and some employers are in favor of meeting the demands of the workers and others are against the demands. Now, here we have a state of affairs set up which are leading to outbursts of periodical strikes, which in some cases are very serious. At Bury, for instance, a small gang of men left work at 12.30, so as to enforce the principle of their contentions on their employers. They all got the "sack" and then 250 hands came out on strike and declined to go back to work until the five dismissed men were reinstated. The leaders of the men's unions were sent for, and negotiations were going on for a week before a settlement was arrived at. Some of the men were reinstated and some were found work in another mill by the union leaders. The employers say they are now quite willing to recognize the union and certain reforms are promised. In Sunderland there has been more trouble with the mill hands, and also in Lancashire. A remarkable feature of these troubles is the attitude the paper manufacturers of the country are adopting. As the saying is they won't show fight, neither will they give way to the workers until a strike is proclaimed. Joseph Dixon, a vice-president of the Papermakers' Association, has appealed to the mill owners to form a federation, so that they might, as a body of employers, meet the men and their leaders face to face and settle any differences that exist. His motto is "United We stand, Divided We Fall." And it is falling the paper manufacturers are to-day, because by the time a strike is settled the workers' leaders come out victorious with some new concession for the employes. What a grand thing it would be for the sake of peace if the employers would only grapple this week-end stop question and settle it once and for ever with the employes.

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Taking the past couple of weeks together the paper manufacturer in England has been threatened with strikes on all sides, and to-day he is in the unhappy position that he does not know what to-morrow may bring to dislocate his mill or his business. Labor unrest is general all over England, and at times it assumes a very threatening attitude towards employers and capitalists.

The chemical and engineering exhibition was opened here about two weeks ago, and an invitation was accepted by the London representative of the Pulp and Paper Magazine to be present at the opening ceremony, which was performed by Lord Desborough. Read, Holliday & Sons, of Hiddersfield, and of 77 Front Street East, Toronto, had a very nice stand, showing the application of their colors for dyeing paper. This firm claims that acid colors are rather weak in coloring power on paper pulp, although they are more soluble than the basic colors, but they are faster to light and give level dyeings when fixed by the size. Tannin and metallic mordants are practically useless with this class of dyes. The solution of the dye must be mixed with the pulp before any sizing material is added. This is the essential condition for pulp dyeing with acid coloring matters and heavy subsequent sizing is essential for the production of deep shades with them. Read Holliday & Sons also maintain that paper pulp dyed with acid colors is liable to give a finished paper with differently colored sides. This difference is due to the action of heat of the drying cylinders, and does not occur with basic colors. Hence, when papers have been dyed with acid coloring matters, the drying cylinders must not be too hot. They also say that basic colors require a mordant with paper as in textile dyeing, and this is done by the addition of alum (which is also used for sizing), which is usually quite sufficient for mordanting basic colors. At the same time they are fixed by china clay and fibres generally fairly well, if the basic color is added to the loaded pulp after it has been heated to a temperature of at least 140 degrees F., but not exceeding 160 degrees F. Another point with regard to level dyeing of paper with basic colors is that the dye should not be added in too strong a solution to the pulp. Basic colors possess greater coloring power than acid colors, but they are deficient in fastness to light. Much better results are obtained by using both classes of color, adding a basic color to the pulp first and then an acid color, towards which the basic color first employed acts as a mordant.

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Direct cotton colors, say Read Holliday & Sons, are now used for all better class dyed papers, being fast to light under normal conditions, and also producing very warm shades. They are largely used for blottings and in the production of mottled or ingrain fibre effects. The addition of Glauber's Salt is very beneficial to dyeing operations and tends to fix the color on the pulp. The addition of size and alum should always be made as late as possible after the addition of the color. There can be no doubt that the sulphur colors are destined to have a great future in paper dyeing, but so far they are not used to any great extent by the papermaker. The difficulty lies in the necessity to use sodium sulphide to dissolve the color, and Read Holliday's method of dyeing is to add the color dissolved in the sulphide solution to the pulp in the beater and work for about one hour; then add from ¼ to ½ per cent. sodium bichromate on the weight of pulp in the beater. This, they claim, oxidizes the sulphide during the constant beating action, and the pulp can be finished with size and alum and should possess no offensive smell and have little or no action on the various metallic parts of the machine. Whether this method will eventually solve the difficulty time, and time only, will show; in any case, it is reasonably certain that the great benefits which have occurred to textile dyeing by the introduction of sulphur colors will, before long, be realized in paper dyeing. Read Holliday & Sons are a firm that enjoy the highest reputation amongst British paper manufacturers. They are ranked as first-class experts in the art of dyeing, and at all times are willing to carry out any special tests in their various laboratories, or to forward samples to be personally tested for any desired requirements.

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The utilization of electricity in paper mills for power and lighting is becoming more popular in the United Kingdom, and manufacturers have arrived at the conclusion that it helps to decrease the cost of production. A month or two ago the Sun Paper Mills Company, at Fennis-Cowles put down new engines with a capacity of 1,000 h. p., and they are now reported to be running remarkably well. These engines are up-to-date, with all the latest improvements that Yates & Thom, of Blackburn, can devise. The mill is now to be supplied with an electric plant, and when this is finished the Sun Company will have premises of the most modern description in the history of papermaking. The Bury Papermaking Company has also decided to instal electric plant, and negotiations are in progress with this object. This company pays a dividend at the rate of 10 per cent., and for the past year they carried forward a sum of £13,260.

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It is very gratifying to see that Canadians are giving more attention to the British wood pulp market, and it must be admitted that the improvement has only become noticeable since the Pulp and Paper Magazine pointed out how Canada neglected England for the sake of the States. British importers and agents welcome Canadian material, and the more inter-trading there is between the Dominion and the Mother Country the better for all concerned. Firms in Canada are now seeking importers in London for the purpose of fixing up contracts, but the most direct and best way of doing business is to have a representative on the spot to call on clients. Enquiries from Canada are becoming more numerous, and British mill owners and agents like to deal directly if possible with a responsible representative of a wood pulp firm.

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During the year 1912 the United Kingdom exported paper of all kinds, including boards, to the value of £3,559,317, compared with £2,314,967 in 1911. Of this total £266,762 worth went to Canada, compared with £233,063 in 1911, and £149,178 to the United States, as against £131,908 in 1911.

NEWFOUNDLAND NOTES

Special to Pulp and Paper Magazine.

Four steamers of the Donaldson Line will ply all summer between Botwood, the shipping port for the products of the pulp and paper mills at Grand Falls and Bishop Falls, and England, bring to the former such supplies for the mills as china clay, coal, etc., and returning to the latter with pulp and paper cargoes.

On the last of May the Masina took 5,000 tons of paper and pulp from the aforenamed port for Manchester, England. The Parthenia, with 6,000 tons of paper and pulp, sailed from the same port on 12th inst. The Tritonia arrived the following day, and has since sailed with about 5,000 tons of paper and pulp, and the Kastalia took away 4,600 tons of paper on the 20th inst. The Masina is now taking away another 5,000 tons of paper. These ships will make fortnightly trips during the season.

An order has been placed with the Anglo-Newfoundland Development Company, operating at Grand Falls, for the delivery of 40,000 tons of newsprint, for Melbourne, Australia.

Work on the pulp mill at Campbellton is progressing rapidly. The erection of the dam is being pushed ahead and some of the machinery has been put into place. It is hoped to have the mill in operation in the early fall. A gang of men have been engaged in the woods cutting timber.

Lumber of all kinds has been scarce in the local market the past season, and the prices are still on the up-grade. Most of the mills throughout the country are running to their utmost capacity, and yet it is necessary, in many instances, to book orders a long way ahead, so great is the demand. Owing to the scarcity of lumber for building purposes, many builders are directing their attention to the greater use of stone for that purpose. We have an abundance of some of the best building stone in the world, and by its greater use it will somewhat relieve the congestion on our lumber demands.

Messrs. Brown and Sweeney of Connecticut are now on a tour of Labrador, looking out timber limits for pulp and paper purposes.

Half a dozen Montreal capitalists are taking up a tract of 500 square miles of timber lands on the peninsula between Notre Dame Bay and White Bay. The limits run from the new mining settlement of Bay Verte to within a few miles of Sandy Lake. Some three hundred thousand dollars of capital have been subscribed. Five saw mills will be erected, each with a capacity of 30,000 daily, and a pulp mill will also be erected. Railways will be built to convey the timber to the mills. The limits contain some excellent tracts of the finest kind of spruce and fir timber, as well as a quantity of pine and hardwood.

A SULPHITE MILL FOR ANTICOSTI

Mr. Menier, the famous French chocolate king, intends to erect a large sulphite pulp plant on Anticosti, the great island in the Gulf of the St. Lawrence, of which island he is the sole proprietor. Practically the whole island, which contains 2,500,000 acres, and is larger than Corsica, where Napoleon was born, is covered with timber, and the amount cut so far would not represent a pin-prick on a map of the island. A logging railroad, 23 miles in length, has been built from Ellis Bay into the interior, and this is used for bringing out pulp wood for shipment to American and Canadian points along the upper St. Lawrence waterway.

An up-to-date rossing mill and loading plant has been provided at Ellis Bay. For several years past pulp wood has been shipped out at the rate of 45,000 cords per annum. The pulp wood is 95 per cent. balsam fir and five per cent. spruce, but the balsam is of such superior quality that the fibre is said to be equal to the best spruce. Governor Martin-Zede said the reason for shipping out pulp wood had been to experiment with a view to making it certain that 50,000 cords of pulp wood per annum could be delivered to a certain spot on tidewater. It had been demonstrated that this could be done, and plans were now under way for establishing a large sulphite plant, and shipping out only sulphite pulp in the future. An up-to-date system of cutting is being carried out, so as to ensure a perpetual supply.

Pulp and Paper News

The annual meeting of the Wayogamack Pulp and Paper Company will be held at Three Rivers on July 24th.

A fire at Bridgewater, N.S., destroyed six buildings owned by Frank Davidson of the Nova Scotia Wood Pulp and Paper Company.

R. E. Snetsinger, office manager of the Toronto Paper Manufacturing Company, Cornwall, left last week on an extended trip to the Old Country.

The R. H. Gooday and Company's lumber mills, located at Scott's Junction, 30 miles from Quebec, on the Quebec Central Railway, have been destroyed by fire. The loss was over $60,000.

A. G. Campion, sales manager of the Belgo-Canadian Pulp and Paper Company, Shawinigan Falls, Quebec, who has been seriously ill for some time, is greatly improved, and expects to resume his duties very shortly.

A drowning accident occurred at Fort Frances, when Emil Caen, National Falls, an employee in Minnesota and Ontario Power Company's paper mill, was drowned.

Mr. Schofield, secretary of the Edward Partington Pulp and Paper Company, St. John, N.B., who has been ill for a long time at Saranac Lake, is making satisfactory progres stoward recovery.

J. L. McNicholl, former superintendent of the Barber Paper Mill at Georgetown, Ontario, who has been spending several weeks at his old home in Scotland, has returned. It is understood that he is making arrangements to locate in Toronto.

The Spanish River Pulp and Paper Mills have under consideration the erection of a sixty ton sulphite plant at Espanola, but nothing definite will be decided upon for some time yet, pending negotiations in amalgamation with Lake Superior.

The plant of the Riordon Pulp and Paper Company at Merritton, Ontario, which was visited by fire in March last, was again put in operation this week. Complete repairs have been made to the digester and screen rooms and everything is now in fine working order.

The Federal Engineering Co., Ltd., have issued a very interesting booklet called "The Main Drive," which is thoroughly illustrated and deals with belt problems for every condition. The book is most valuable to all interested in beltings.

Abitibi Pulp and Paper Company reports that their property was not damaged by the recent fires in Northern Ontario. Besides the two fire rangers appointed by the Government, the company employ fifteen more. The limits are well protected, and no danger is anticipated.

The Temiskaming and Northern Ontario Railway have issued an interesting report showing the increase in the shipments of pulp wood by that line. In May of the present year the number of cars shipped was 131, while in the corresponding month last year there were only eleven, a gain of 120 in a year.

John Thickens, for several years head of the pulp wood experiment station at Wausau, has tendered his resignation to accept the assistant superintendency of the plant of the Brunet Falls Manufacturing Company at Cornell, Wis. Mr. Thickens will be succeedd at the Government plant in Wausau by Harry McNaughton, who for some time has been assistant superintendent.

Price Bros. and Co. Kenogami paper mills may shut down all their mills for 24 hours at the week-end. They expect to gain in efficiency and production by this step, although they are operating on the three-tower basis. This is in line with the recent report by Mr. Arthur C. Hastings in the operation of the news mill.

It is understood that Mr. Edward Foley, of the Foley-Riegler Co., Thorold, Ont., is contemplating the erection of a one-machine board mill at Thorold. He is attempting to interest capital in the project at the present time. The location should be a good one, being very near the American market, and it is also in a locality where there is a great deal of ground wood screenings.

The following lumber companies have been incorporated in British Columbia:

The Shields Lumber Co., Limited, Victoria, B.C.; The Ocean Lumber Co., Limited, Victoria, B.C.; Benton Pole & Lumber Co., Limited, West Kootenay, B.C.; Marcum Lumber Co., Limited, Vancouver, B.C.; Fleck Timber Co., Limited, Vancouver, B.C.

The Hough Lithographing Company, of Toronto, are preparing to erect a new factory and remove their plant to Brampton, Ontario. A by-law was recently submitted to the ratepayers of that town to loan the company $15,000, and the measure was carried by 444 for and only 15 against. The loan is to be repaid in fifteen years and bears interest at five and half per cent.

M. E. Nicholls, president of the Winnipeg Telegram, and retiring president of the Western Associated Press, who is leaving Winnipeg for Montreal, to become president of the Daily Mail, the new morning paper being established in that city, was last week presented by the publishers of the Prairie provinces with a cabinet of silver as a mark of appreciation of his services.

The Powell River Paper Co., Ltd., will hold a meeting on the 4th of August to wind up the voluntary liquidation and turn over the assets to the Powell River Co., Ltd. As previously reported, this company is not in financial difficulties, but is merely in voluntary liquidation. The head office is in Vancouver, B.C., and the mills at Powell River are in a most flourishing condition.

The C. P. R.'s first forestry work in New Brunswick is being undertaken this week. Mr. Kenneth Vavasour, of Fredericton, is in charge of the party, which commenced work in the vicinity of McAdam Junction, and Prof. R. B. Miller, dean of the U. N. B. Forest School, has commenced his summer's work for the interests of the company. Another party of forestry workers have gone to the Nipigon country in Northern Ontario.

Brown Bros., wholesale stationers and paper dealers, 51-53 Wellington street west, Toronto, who some time ago bought the premises of the Rolph and Clark, at the corner of Simcoe and Pearl streets, will in the course of a few weeks move into their new business home. Brown Bros. have sold their present quarters to an English syndicate for $200,000. The warehouse is a four storey, brick and stone structure, and has a floor space of 45,000 square feet.

Mr. Edward Flynn, formerly assistant manager of the Jonquiere Pulp Co., who left that firm about two years ago to come to Montreal, has returned to the firm of Price Bros. & Co. who control the Jonquiere Pulp Co. as well. As announced previously, Mr. Porritt, the general manager, has resigned and the entire executive control of the mills is undergoing reorganization. Mr. Flynn, after spending a couple of months in the head office, in Quebec, will return to Kenogami.

Hon. W. H. Hearst, Minister of Lands, Forests and Mines for Ontario, reports that the loss by the recent forest fires through the Temiskaming district have not been so destructive as in former years. Practically no timber of commercial value was destroyed. The flames were confined to districts burned over during the past year or two, although some young timber was destroyed. The fires were largely local, and there was no general conflagration such as occurred two years ago, when millions of dollars' worth of timber were eaten up and several lives snuffed out.

The Paper Maker and British Paper Trade Journal has issued a special international number, published in seven languages. It contains two articles by Chas. A. Phillips, the editor of the Journal, which includes reviews of Scandinavian, Swedish and Norwegian countries. Other features are technical articles by Mr. Clayton Beadle, Dr. Stevens and Harry Maddox. The issue is fully illustrated and reflects great credit on the publishers, who have a world-wide reputation as publishers in the paper trade.

The negotiations that have been pending for some time past between the Rapid City Milling Co. and the Grain Growers' Grain Co. bore fruit recently when the directors of the latter company accepted the offer of the latter company and accepted the offer of the milling company to take the whole of the output of flour and feed produced by the mill. It is expected that the mill will be running again at an early date. As is well known the Grain Co. have control of some 170 elevators in the province at the present time, and they contemplate stocking a large percentage of these with flour and feed, so in all probability the mill will be taxed to its full capacity for 24 hours a day for the greater part of the summer to fill this demand.

The Vancouver Milling and Grain Company have made arrangements for building an up-to-date warehouse in Nanaimo, which will cost about $12,000. This will serve to supply the territory between Duncan and Alberni. The large increase in the firm's business in this district made it necessary to have larger quarters for storing a supply. They have also a warehouse in Victoria, where they can carry a large stock required for that district. The firm have under contempation the building of a new warehouse in New Westminster also. Mr. J. E. Hall, the general manager of the company, is making a decided success of this company's business. It is now recognized as one of the most successful milling companies in the West.

The Everett Pulp and Paper Company, of Everett, Washington, has incorporated in British Columbia as a limited company. The head office will be in the city of Everett, Washington, U.S.A., while the head office in Canada will be in the city of Vancouver. The company has incorporated for the purpose of doing all kinds of pulp and paper business, manufacturing and selling. The American firm has two machines of 96 and 106 in. wet Fourdriniers. They manufacture machine finished super-calendered book, varnish label, chemical railroad writing, bond and cartridge. They are the manufacturers of "O. P. S." railroad writing. It is expected they will continue their lines on the Canadian side and erect necessary mills here. The president and treasurer is Mr. Wm. Howarth. The capital stock in Canada amounts to $672,000.

The Edward Partington Pulp and Paper Co., Ltd., St. John, N.B., recently escaped loss of a large stock of seventeen million feet of logs. The flames, which destroyed property close by, were put out before any damage had been done to the company's property. Mr. N. M. Jones, the manager, has about completed the additional installation of the two digesters which he purchased from the Mispec mill, and he will be making pulp on increased production very shortly. Mr. Jones is a pioneer in clean sulphite in the United States. He is now completely reorganizing and overhauling the plant. During the last year the production has increased enormously, and, with the purchase of the Gibson limits, they are in a most favorable position for the production of bleached sulphite. There are continued rumors of the instalment of paper machines at that plant, but under present circumstances it has been decided not to be advisable. They do consider, however, if market conditions alter that they will instal four paper machines, making special grades.

It is not often that diamonds, emeralds, and other precious stones are found among waste paper in the sorting room of a paper plant. It will be remembered that in January last there was a rich find among some old bundles in the sorting department of the St. Lawrence Paper Mills at Mille Roches, Ont. Mrs. Buel, a widow employed in the mill, discovered some three hundred diamonds, seventy-five unset emeralds, a gold ring set with gems, and a pair of diamond earrings. This created great excitement among the hands, and many gathered around. In the sortings, which Mrs. Buell had overlooked, Miss Lena Foley, another employee, picked up some more diamonds, and J. Antoine found a diamond ring. At the Non-Jury Sittings of the High Court in Cornwall, Mr. Justice Latchford, presiding, Mrs. Buell sought to recover the latter goods, contending that they were her property, but her claim against Miss Foley was dismissed with costs. A suit entered against Mr. Antoine was withdrawn after the verdict in the first case. The St. Lawrence Paper Mills Company put in no claim for the valuables.

The excavation for the new ground mill of the Abitibi Pulp and Paper Company at Iroquois Falls, Ontario, has been completed, and construction work has been started by the contractors, Morrow and Beatty, of Peterboro, who have the contract for the dam and mill, which will be built of steel and reinforced concrete. All the contracts in connection with the equipment have been let. The Turbines will be supplied by the Holyoke Machine Co., of Holyoke, Mass., the generators by the Canadian Westinghouse Co., of Hamilton, and the motors by the Canadian General Electric Co., of Toronto and Peterboro, while the Lackawanna Steel Co., of Buffalo, will furnish the structural steel. The laying of the steel for the branch line from Iroquois Junction to Iroquois Falls, six miles distant, was completed last week, so that there will be no difficulty in getting in supplies. There will be eighteen grinders in the pulp mill, with a capacity of ten tons a day each. The stones will be each 36 inches. The wood will be 34 inches. tI is expected that the plant will be in operation at the commencement of the new year.

When the details of the merger of the Spanish River Pulp and Paper Mills and the Lake Superior Paper Company are announced—and it is not expected that this will be for some time yet, owing to various preliminaries—all units of the Spanish River Company will be in full operation. The twelve grinders at Sturgeon Falls are now working to capacity, and one of the two additional 120 inch paper machines, which are being installed at Espanola, was put in operation this week. The other will be going before the end of the month. The combined output of news print of the Spanish River and Lake Superior Companies will be about 450 tons per day. At the Soo the four machines are capable of producing over 200 tons daily The widest machine is 198 inches, another is 186, and two others are each 156 inches. At Espanola the two machines, which were started over a year ago, are each 120 inches. At Sturgeon Falls, each of the two machines is 120 inches. The Lake Superior plant has 24 grinders, with a capacity of 160 tons daily. At Espanola and Sturgeon Falls, the Spanish River Company have 36 grinders in operation and, when the six new ones are installed at the former place, John C. Sutherland, sales manager of the company, states that the output of ground wood pulp by the Spanish River Company will total 230 tons per day. Their sulphite plant at Sturgeon Falls, which is now in fine shape, is producing about 70 tons per day.

OTTAWA NOTES

Special to Pulp and Paper Magazine.

Ottawa, Ont., July 12.

Canadian railway companies will have to debate the question of the cancellation of their cartage tariffs before the Railway Commission soon. Last week the companies announced that after October 1 shippers and consignees would have to make contracts with private companies instead of having their cartage taken care of by the railways through the medium of their own firms. This action was foreshadowed by them when the Railway Commission some time ago refused to let them increase their tariffs by from 40 to 60 cents and allowed only a 10 cent increase. Shippers, however, will take the question of cancellation also before the Commission.

Noel Sarazin, of Hull, an employe of Eddy's paper mill, received a badly crushed arm last week when he was drawn into a set of rollers in the mill. A quick stoppage of the machinery saved his life.

The Canadian Government has received a definite and official assurance from Washington that in the tariff legislation now pending before Congress, there will be no discrimination against Canada in regard to pulp duties. The statement has been generally credited that it was proposed to insert a provision in the new tariff which would penalize the pulp manufacturers in most of the provinces to the extent of $2 per ton on chemical pulp as against the manufacturers of any other country exporting to the United States. This would be the result of the operation of a clause providing that pulp manufactured in any province in which there is any increased license fee, or any restriction against the export of either pulp, pulpwood, pulp paper, or chemical pulp, coming from such province, should be subject to a duty of $2 per ton, all other pulp or pulpwood being allowed to enter the United States free of duty. It was understood that this provision would have operated against pulp manufactured from wood cut on crown lands in Ontario, Quebec and New Brunswick, the export of this pulp amounting to something over a million cords a year. When the new duties were first under discussion the proposed provision in regard to pulp was brought to the attention of the Canadian Government and communications passed between Ottawa and the British Embassy at Washington. The matter was later brought up in Parliament when Premier Borden stated that if the United States Treasury Board placed the same interpretation upon the language of the proposed enactment as had been placed upon similar language in the past, there would be no discrimination against Canadian pulp wood cut on crown lands. This view has now turned out to be the correct one. The matter was referred to the United States officials whose duty it would be to interpret the enactment and their statement is that no discrimination would result.

The western freight rate inquiry, the progress of which was noted in the last number of The Pulp and Paper Magazine, will resume for the final session in a week or two, having been adjourned by the Railway Commission for twenty days. Chairman Drayton before doing so, however, submitted a number of questions, some of which are of special interest as affecting rates to and from distributing points for various commodities, that is, the rates which jobbers have to pay. The questions, which were submitted to all the parties concerned in the case were as follows: Whether or not stations should be placed on the same rate basis insofar as general merchandise rates are concerned, irrespective of density of traffic in a given district; whether or not distributing points, irrespective of population or business, should be entitled to similar commodity rates; whether or not all stations at common distances from distributing points from which freight moves at commodity rates should be on the same basis in respect of distance and rates; whether rates should be fixed in the Western provinces on the assumption of a sufficiently existing mileage or on such a basis as would encourage further development; whether rates should be based on C. P. R. conditions alone.

TARIFF REVISION COMING.

Ottawa, June 26.—Rumors have good foundation that Canada will undertake a further revision of the entire tariff during the summer, to be taken up by the next session of Parliament. It is expected also that some small changes will be made in the classification of pulp and paper and pulp wood. When the matter comes up it is known that a very thorough investigation will be conducted.

CANADIAN MARKETS.

The usual mid-summer quietness is prevailing in pulp and per circles. News print is fair and all the plant are running principally on contract. Prices on new business are a little easier. Book and writing mills are rapidly catching up with orders, and most of them are making reasonably prompt deliveries. Orders are not coming in as freely or in as large quantities as some time ago, but this is naturally expected at this season, coupled with the present money stringency. There is not much ground wood moving, but conditions appear to be verging on to activity, owing to the law water across the line, and Canadian plants are holding out for prevailing prices. The sulphite situation remains unchanged, and there are no heavy stocks on hand. The high figure prevailing for pulp wood in Norway and Swen is expected to keep Canadian prices up to the present mark. In wrapping papers there is not much doing, but of kraft there appears to be a great deal on the market, and price-cutting goes on. The paper bag situation has not improved materially, and discounts continue to vary. The rag and paper stock market is quiet in practically all lines. On the whole, the condition of affairs remains much the same as it has for the past three or four weeks, and no worth while changes in volume of business or quotations are expected until the holiday season is over.

Board and wrapping mills throughout Canada are preparing to take advantage of the new Canadian Government system of parcel post. It is anticipated, on the basis of results in the United States recently, that the Canadian mills will shorly be able to dispose of double their output, and that the market conditions for wrappings which have fluctuated in disappointing fashion will be given more backbone.

Quotations, f.o.b. Toronto, are:

Paper.

News (rolls) $42 to $44.
News (sheet) $46 to $50, f.o.b. mill.
Book papers (carload) No. 3, $4 to $4.35.
Book paper (ton lots) No. 3, 4c to 4½c.
Book paper (carload) No. 2, 4½c.
Book papers (ton lots) No. 2, 4½c to 5¼c.
Book papers (carload) No. 1, 5c to 6c.
Book papers (ton lots) No. 1, 5¼c to 6½c.
Writings, 5c. to 7½c
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.35 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3¾c. to 5c.

Pulp.

Ground wood (at mill), $16 to $17.
Ground wood, $22 to $24.50, delivered in United States.
Sulphite (unbleached), $45 to $46, delivered in Canada.
Sulphite (unbleached), $44 to $49, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $60 to $64, delivered in United States.

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft white shavings, $1.70.
No. 1 Mixed Shavings, 60c.
White blanks, 97½c.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.50.
No. 1 book stock, 80c.
No. 2 book stock, 55c.
No. 1 manilla envelope cuttings, $1.15.
No. 1 print manilas, 65c.
Folded news, 45c.
Over issues, 50c.
No. 1 clean mixed paper, 30c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.75.
No. 1 white shirt cuttings, $5.
Blue overall cuttings, $3.50 to $3.62½.
Black overall cuttings, $1.65 to $1.75.
Black linings, $1.65 to $1.75.
New light flannelettes, $5.00.
Ordinary satinets, 82¾c to 85c.
Floc. satinets, 95c.

Quotations for Montreal are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book papers, carload lots, No. 3, 4⅛c. to 4½c.
Book papers, broken lots, No. 3, 4¼c. to 4¾c.
Carload lots, No. 2, 4¾c.
Manila B., 3¼c. to 3½c.
Broken lots, No. 2, 5c. to 5½c.
Carload lots, No. 1, 5¼c. to 6¼c.
Broken lots, No. 1, 6¼c. to 6¾c.

Pulp.

Sulphite Easy Bleaching, f.o.b. Montreal, $44 to $45 per ton.
News quality, f.o.b. Montreal, $42 to $43 per ton.
Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $16, f.o.b. Montreal.
Ground Wood, No. 2, $22 to $24, delivered United States.

Wrappings.

Fibre, 4c to 4¼c.
No. 2 manila, 3¾c. to 4c.
No. 1 manila,, 3½s. to 4½.
Kraft, 4c. to 4¾c.

Paper Stock.

No. 1 hard shavings, $1.90 to $1.95.
No. 1 soft white shavings, $1.60 to $1.75.
No. 2 soft white shavings, $1.15.
Mixed shavings, 50c. to 55c.
White blanks, 85c. to 90c.
Ledger, $1.15 to $1.25.
No. 1 book stock, 90c.
No. 2 book stock, 45c. to 55c.
Manila envelope cuttings, $1.05 to $1.10.
White envelope cuttings, $1.75.
No. 1 print manilas, 55c. to 60c.

Folded news, 55c. to 60c.
Crushed news, 45c. to 50c.
Good mixed paper, 40c. to 43c.
Old white cotton, $2.50 to $2.75.
Mixed cottons, $1.60 to $1.75.
Light cottons, $1.75.
No. 1 white shirt cuttings, $5.50 to $5.75.
Light print cuttings, $4.00 to $4.50.
Fancy shirt cuttings, $2.10 to $2.50.
Blue overall cuttings, $3.45 to $3.55.
Brown overall cuttings, $2.25 to $2.50.
Black overall cuttings, $1.55 to $1.70.
Linings, $1.50 to $1.75.
New unbleached cotton, $4.60 to $5.00.
Bleached and unbleached cotton, $4.50 to $5.00.
Bleached and unbleached shoe clips, $4.00 to $4.50.
New light flannelettes, $3.75 to $4.25.
Flock satinets roofing stock, 95c. to $1.00.

THE BRITISH MARKETS.

Special to Pulp and Paper Magazine.

London, July 10, 1913.

The British paper industry shows improved activity, not only with the export trade but with the home market. Since the middle of June a good deal of new business has been passing, with the result that some paper mills have suddenly commenced to work at full capacity day and night, and the prices obtained are considered satisfactory. Everything at the moment of writing points to this activity continuing for anoher few weeks and this is substantiated by the fact that papermakers are freely placing orders for raw materials, except, of course wood pulp with which they are being supplied on contracts. The London County Council and the government have given out good contracts to the mills, not to speak of other bodies who commenced their paper year from the end of June. Prices of paper have now advanced all round and strenuous efforts are made to maintain them.

* * *

The mechanical pulp market is firm and featureless. Practically no new business is passing and the same story comes from Scandinavian sources. Prices are about as follows:

Pine, 50 per cent. moist, unwrapped	$10.00	to	$10.60
Pine, dry	22.00	to	23.20

* * *

The chemical pulp market shows more firmness and business scarce, due no doubt to the small output for new business in Scandinavia. Sulphite easy bleaching (1st quality) has again hardened in prices, but sulphite strong is easier. Heavy shipments of chemical pulps are now arriving in England from all sources, the greater portion being contract supplies. Prices are about as follows:

Sulphite, bleached	$55.20	to	$57.00
Sulphite (easy bleaching) 1st quality	47.00	to	47.50
Sulphite, strong quality	34.00	to	35.00
Soda unbleached, 1st quality	34.00	to	35.00
Soda unbelached, strong quality	32.50	to	33.00
Soda Kraft	32.50	to	33.00

* * *

The demand for home and foreign rags continues with great vigor and the difficulty experienced is trying to keep up the supply. Bagging is particularly short and dearer. From the 20th to 29th June, 335 bales of rags were exported from England to Canada.

* * *

The chemical market is not very active, a temporary dullness passing over it. Bleaching Powder is $26 (soft wood); Ammonia Alkali, 58 per cent., $16; Caustic Soda, $24.50 for 77 per cent.; Salt Cake, $9.60, and Soda Crystals, $10.20.

The market for exports is firm. Most of the large consumers have now secured the bulk of their requirements and there is a pause in negotiations. The tone of the market has, threfore, become steadier and resistence to further bearing down of prices more manifest.

* * *

The demand for China Clay is as brisk as ever and producers are deluged with orders from America and the home markets. Some heavy shipments were recently made to Newfoundland. Gypsum, Mineral White and other paper makers loadings are dearer for new business. It may now be taken for granted that all loadings and China Clay are up 12 cents to 24 cents per ton extra. This is due to the change in the English freightage.

LONDON WEEKLY LETTER.

The phenomenal spirit of darkness and lassitude which has held up business in chemical pulp in Europe during the whole of this year still continues, and at an important meeting of British wood pulp agents, held in Manchester yesterday, at which I was present, I heard from several sources that the Swedish pulp producers appear to be most firmly convinced that prices will further increase, whilst the paper makers absolutely decline to accept that view. Hence the holding up of business beyond unimportant contracts. There has been a temporary lull in the demand for fine printings in Great Britain, but the mills generally are well off for orders. The following prices are quoted, and there will be no change at present:

Sulphite, bleached, £11 10s. to £12 15s.
Sulphite, each bleaching, first quality, £9 7s. 6d. to £9 15s.
Sulphite, news or strong quality, £8 10s to £8 15s.
Soda, unbleached, first, £8 10s. to £8 15s.
Soda, unbleached, strong, £8 2s. 6d. to £8 10s.
Soda, Kraft, £8 2s. 6d. to £8 10s.

$56.06—$61.16	$50.05—$55.50
$45.70—$47.53	$40.81—$42.44
$41.44—$42.66	$37.00—$38.09
$41.44—$42.66	$37.00—$38.09
$39.60—$41.44	$35.36—$37.00
$39.60—$41.44	$35.33—$37.00

NEW YORK MARKETS.

Special to Pulp and Paper Magazine.

New York, N. Y., July 11, 1913.

From all sides comes the reports of low water in the streams and rivers and in consequence ground wood pulp makers are gradually shutting down their machines. A careful study of the situation by your correspondent during the past ten days reveals the fact that the supply of pulp on hand at the consuming mills is becoming lower and lower, while that at the producing points is of goodly volume. Makers who grind pulp for sale only are very firm in their views in anticipation of premium prices during the forthcoming months. In several instances have orders of goodly size been refused for September and October deliveries at the prvailing markt prices. Quotations are being made chiefly for spot shipments, though some few grinders who have extra heavy supplies on hand are accepting contracts for forward deliveries.

Sulphite pulps are reflecting pretty much the same tone as last reported. Business generally is quiet. Mills are drawing steadily on their old contracts, but very few are anticipating their requirements for the future. The unsettled state of affairs regarding the free entry of foreign pulps, and the pending changs in the tariff, continues to cause consumers to hold off. Bleached sulphites, both foreign and domestic, continue to be strongly maintained, on account of most mills in this country and abroad being pretty well sold out over the next several years. Such is not the case, however, with the unbleached grades. Movement in these lines is easing off perceptibly and quite a few requests have been received by the makers to hold up shipmnts for the time being. Sulphate and Kraft pulps are strong in prices, but the movement at present is practically confined to old contracts.

The local waste paper market is at present at its low point. Movement is very light and accumulations in some lines are increasing rapidly. Packers are not taking on supplies in the common grades, which, they say, are non profitable at the present market quotations. Prices all along the line are inclined to be very weak, and the majority of packers appear willing to accept anything within reason to move their stocks. Hard white shavings are to-day quoted at $1.75 to $2.55; soft white shavings from $1.70 to $1.80; colored shavings from 60c. to 85c.; flat stocks from 70c. to 95c.; ledger stocks, $1.50 to $1.80; old manilas, 25c. to 45c.; broken and mixed news, 25c. to 30c.; common papers, 20c. to 25c.; and mixed papers, 25c. to 30c.

Pulp.

Ground wood, No. 1, $18 to $19 per short ton, f.o.b. mill.
Ground wood, No. 2, $16 to $17 per short ton, f.o.b. mill.
Unbleached sulphite, domestic, 2.15c. to 2.30c., deliered.
Bleached sulphite, domestic, 3c. to 3.15c., delivered.
Unbleached sulphite, foreign, 2.05c. to 2.30c., ex-dock, N. Y.
Bleached sulphite, foreign, 3c. to 3.25c., ex-dock, N. Y.
Bleached sulphate, foreign, 2.60c. to 3c., ex-dock, N. Y.
Unbleached sulphate, foreign, 1.90c., to 2.10c., ex-dock, N. Y.
Bleached soda pulp, domestic, 2.15c. to 2.35c., delivered.
Kraft pulp, foreign, 2c. to 2.20c., ex dock, N. Y.

Paper.

Locally, this market continues to reflect a very quiet and uninteresting appearance, and no new features of consequence have developed during the interval. While there is a certain amount of businss passing, returns during the past sixty days have fallen away behind the corresponding period of a year ago. Consumers do not appear to be anticipating their requirements for the future, and the general movement at present is chiefly for immediate requirements. Outside of the regular midsummer quietness, the delay in the tariff changes at Washington reflects a state of unrest among consumers, jobbers, manufacturers and importers. No one appears to know exactly where they stand, and in consequence are not overstocking. As previously reported in these columns, newsprint is moving steadily on old contracts, but a certain amount of competition continues to prevail for new business. The one pleasing feature about the general paper market is the firmness on which prices are being maintained. With one or two exceptions, all lines are maintaining previous levels, as follows:

News, rolls, transient business, $2 to $2.10, f.o.b. mill.
News, rolls, contract renewals, $1.95 to $2.05, f.o.b. mill.
News, sheet, $2.10 to $2.15, f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20, f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90, f.o.b. mill.

Writing paper superfine, 11c. to 13c., delivered east of the Mississippi River.

Writing paper, extra fine, 10½c., delivered east of the Mississippi River.

Writing paper, No. 1, fine, 9c., delivered east of the Mississippi River.

Writing paper, No. 2 fine, 8c., delivered east of the Mississippi River.

Writing paper, engine sized, 4½c. to 8c., delivered east of the Mississippi River.

Bond paper, 6c. to 24c., delivered east of Mississippi River.
Linen paper, 7c. to 18c., delivered east of Mississippi River.
Ledger paper, 8c. to 30c., delivered east of Mississippi River.
Manila jute, 4¾c. to 5¼c., delivered.
Manila, wood, $2.40 to $2.80, delivered.
Kraft, No. 1, $3.65 to $4.02½, f.o.b. mill.
Kraft, No. 2, $3.27½ to $3.77½, f.o.b. mill.
Screenings, $1.75 to $2.12½, delivered.
Boxboards, news, $30 to $32 per ton, delivered.
Boxboards, chip, $28 to $30 per ton, delivered.
Boxboards, straw, $28 to $29 per ton, delivered.
Wood pulp board, $42.50 to $45 per ton, delivered.
Tissue, white, cylinder, 42½c. to 45c., delivered.
Tissue, fourdrinier, 45c. to 50c., delivered.
Tissue, jute manila, 50c. to 55c., delivered. Meb.

UNITED STATES TRADE FOR MAY.

Special to Pulp and Paper Magazine.

Washington, D. C., July 10, 1913.

The import statistics of the United States for the month of May, 1913, and for the eleven months ended May 31, 1913, has just been issued by the Department of Commerce and Labor. This report shows that during May, 1913, 32,934,391 lbs. of printing paper were brought into the United States, valued at $687,938, as against 9,571,571 lbs. valued at $195,866 imported during the corresponding period a year ago. Of this amount Canada shipped 27,124,765 lbs., valued at $553,069, as against 7,469,003 lbs., valued at $135,282. For the eleven months ended May 31, 1913, 265,576,230 lbs. ,valued at $5,307,100, were imported; an increase of 157,355,538 lbs. and $2,068,072 imported during the corresponding period of a year ago. Canada furnishing during this same period 207,437,219 lbs., valued at $3,986,177, an increase of 149,334,700 lbs., and $2,882,466.

TENDERS FOR PULPWOOD LIMIT

TENDERS will be received by the undersigned up to and including Friday, the 15th day of August next, for the right to cut pulpwood on a certain area tributary to the Lake of the Woods, in the District of Kenora.

Tenderers shall state the amount they are prepared to pay as bonus in addition to dues of 40c. per cord for Spruce, and 20c. per cord for other pulpwoods, or such other rates as may from time to time be fixed by the Lieutenant-Governor in Council, for the right to operate a pulp mill on or near the area referred to.

Such tenderer shall be required to erect a mill or mills on or near the territory, or in such place as shall be approved by the Lieutenant-Governor in Council, and to manufacture the wood into paper in the Dominion of Canada.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Hnourable the Treasurer of the Province of Ontario for ten per cent. of the amount of their tender; to be forfeited in the event of their not entering into an agreement to carry out conditions, etc.

The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested, etc., apply to the undersigned.

W. H. HEARST,
Minister of Lands, Forests and Mines.

Toronto, Ontario,
May 20th, 1913.

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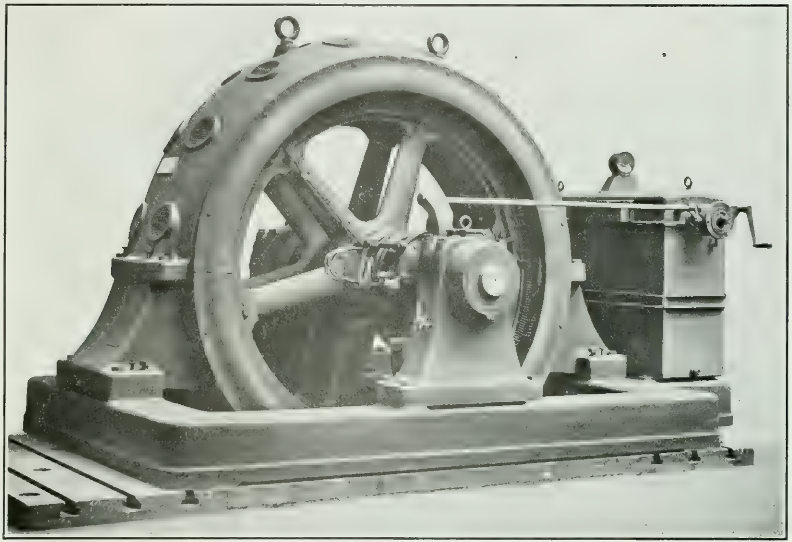

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The imports of mechanical ground wood pulp during May amounted to 19,890,791 lbs., valued at $162,192—Canada furnishing free of duty 18,560,395 lbs., valued at $151,601. These are compared with the imports of May, 1912, of 21,934,475 lbs., valued at $180,021—Canada furnishing 17,485,105 lbs., valued at $152,095. The imports of this item for the eleven months ended May 31, 1913 and 1912 respectively amounted to 343,257,144 lbs., valued at $2,825,490 and 300,278,374 lbs., valued at $2,271,929. Of these amounts Canada exported into the United States free of duty 305,959,376 lbs., valued at $2,527,413 in 1913 and 223,083,163 lbs., valued at $2,651,443 in 1912.

Unbleached chemical pulp was brought into the country during May to the extent of 47,722,149 lbs., valued at $783,578, as against 31,558,540 lbs., valued at $494,935 imported in May, 1912. In this item Canada furnished the small amount (free of duty) of 6,145,376 lbs., valued at $93,500 and 3,261,534 lbs., valued at $49,539. The eleven months imports of chemical unbleached pulp amounted to 557,027,636 lbs., valued at $7,776,366 as against 428,227,233 lbs., valued at $6,519,538—Canada furnishing 49,082,186 lbs., valued at $860,881 in 1913 and 27,522,346 lbs., valued at $432,419 in 1912.

In the bleached chemical pulps, the imports amounted to 18,240,525 lbs., valued at $416,024 in May, 1913, and 15,410,679 lbs., valued at $341,844 in May, 1912. Canada's share of this was 595,340 lbs., valued at $15,869 in May, 1913, and 1,089,198 lbs., valued at $28,288 in May, 1912. During the eleven months ended May 31, 1913, 154,099,917 lbs., valued at $3,600,302, were brought into this country, as against 152,857,355 lbs., valued at $3,260,780 imported during the corresponding period last year. Canada's share for this period was 10,707,645 lbs., valued at $278,195 and 13,298,493 lbs., valued at $331,342. Meb.

UNITED STATES PRODUCTION FOR MAY.

Special to Pulp and Paper Magazine.

New York, N. Y., July 12, 1913.

Records of the American Paper & Pulp Association show that during the month of May, 1913, the actual output of the news print mills was 105,473 tons, against a normal output of 113,940 tons. 93 per cent. of the normal was therefore made during the 25 days that mills were kept in operation. During this same period 103,262 tons of news print was shipped, or 98 per cent. of the actual production. The remaining 2 per cent. increaesd the stocks on hand at the end of the month from 30,341 to 32,776 tons.

The wrapping paper mills report a production of 49,525 tons, against the normal output of 55,809 tons; which is 99 per cent. of the normal. The number of days actually run during the month of May was only 24. Shipments amounted to 47,959 tons, or 97 per cent. of the actual production. The stocks on hand at the end of the month were therefore increased from 30,135 tons to 32,000 tons.

The actual out turn of the book paper mills was 61,501 tons, against the normal of 66,285—93 per cent. of the normal being made. The book mills were operated twenty five days during the month. Shipments amounted to 59,563, or 97 per cent. of the actual output. Stocks on hand at the end of the month were accordingly increased from 28,014 tons to 30,608 tons.

During this same period the production of the board mills was 69,571 tons, only 87 per cent. of the normal output of 79,596 tons. These mills were operated 24 days during the morth. The shipments during the month equalled 100 per cent. of the actual production or 87 per cent. of the normal production. Surplus stocks on hand at the end of the month were therefore practically the same, viz., 11,008 tons.

The writing paper mills report their production as 15,635 tons. This is 87 per cent. of the normal outturn of 18,009 tons. These mills operated but 23 days during the month. Shipments amounted to 15,391 tons, 98 per cent. of the actual and 85 per cent. of the normal output of the mills. Surplus stocks were accordingly increased from 21,613 tons to 22,718 tons.

Tissue paper mills actually made 6,085 tons, which figures 97 per cent. of the normal capacity. These mills were kept busy for 26 days during the period. Shipments amounted to 5,632 tons, or 90 per cent. of the normal, and 93 per cent. of the actual output. Surplus stocks at the end of the month were accordingly increased from 3,686 tons to 3,700 tons.

Coated book manufacturers show an outturn of 8,657 tons, against a normal outturn of 11,016. These mills were only operated 23 days. The shipments amounted to 5,632 tons, 76 per cent. of the normal and 96 per cent. of the actual outturn. Surplus stocks on hand at the end of the month were therefore increased from 8,057 to 8,403 tons.

A recapitulation of all the mills reporting to the association shows that during the month of May 339,344 tons of paper was actually made, as against the normal output of 376,352 tons. This shows that but 90 per cent. of the normal production was actually made. Mills were operated on an average of 24 days during the month, and ran 64 hours below the normal. Shipments during the same period amounted to 331,223 tons. In other words 88 per cent. of the normal production, or 98 per cent. of the actual production was shipped. The 2 per cent. of the actual outturn of the mills that was held over, increased the surplus stock on hand at the end of May to 155,054 tons. Meb.

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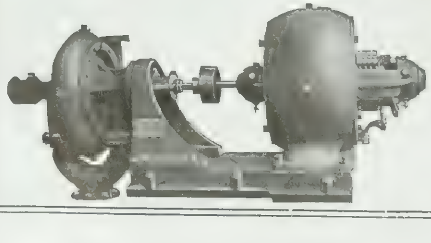

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OF CANADA

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COST ACCOUNTING IN PAPER MILLS

Nearly every paper mill of any size has some method of cost accounting varying in plan with the personality of the manager and in effectiveness with his executive talents. All mills thinks they know exactly what each item in the manufacture of their product is costing them. One working into this matter is impressed with the need of a standardization in this phase.

Recently the American Paper and Pulp Association had a complete investigation into these matters in connection with wrapping mills. Their results proved the necessity of some such action. and are summarized as follows:

First of all it was found that many of the mills did not make it their practice to figure monthly cost by any system, permitting a long time to elapse without having any available figures showing the expense of their operations.

Second—There was found to be the widest possible difference in the rates of depreciation figured in the estimation of production cost; some mills indeed not taking the item into account at all. It goes without saying that no manufacturer can conduct his business intelligently, or have any approximate conception of his profits, if indeed there be profits at all, without regularly charging off a proper percentage for the depreciation of his plant and equipment. And unless there is a practical uniformity in the rate adopted for this purpose, there can be no basis of comparison between the results figured at different mills.

Third—Among those mills engaged in manufacturing both pulp and paper there seemed to be no definite basis for a division of the fixed charges including interest, taxes and administration expenses, between the pulp and the paper mills. Thus it was made all the more difficult to determine whether profits or losses were to be credited more to the operation of one plant than to the other.

Fourth—The same lack of definite basis upon which to divide the cost of power and fuel between pulp and paper mills was shown to exist, resulting in the same difficulty of determining the relative productive merits of the two plants.

Fifth—At many of the mills the most unsatisfactory and inaccurate methods of weighing stocks and taking tests for the purposes of reducing wet to dry weights were found to exist; as was the same indefinite practice with reference to checking reported weights of loose pulps or slush, with yield per cord of wood used, or per digester, in the case of sulphite pulp.

Sixth—Some plants were found to be charging the paper mill with the pulp at its actual cost of production, while others were charging it at the market price.

It may be seen at a glance that a very great difference will arise in the last named item when pulp is figured at the actual cost of its production. Certain mills own and operate their own timber lands, which in many instances were acquired at prices far below those prevailing today. If for that reason wood taken from land owned by the plant is considerably cheaper than such wood bought today in the open market, there is no reason why the increased value of the

LTY OF FORESTRY
AUG 5 1913

raw material should be given away, and the practice of giving the paper mill the benefit of this appreciation in the value of raw materials is nothing more or less than deceiving one's self. If a mill cannot charge its raw materials at the market price and still continue to do business at a reasonable profit, it is infinitely better to shut down the plant and dispose of the materials at the market price. Thus the responsibilities and hazards, as well as the investments in operaating equipment, would be materially diminished and better profits at the same time guaranteed.

To charge a paper mill with pulp at a low rate simply because the wood from which it was produced happens to have been bought at an exceptionally low price is no more proper or scientific than it would be to make no charge whatever for the wood, if the owner and operator happens to have inherited it without the payment of any money whatever in its acquirement.

Where one has the good fortune or good judgment to invest in timber land at a time and place that results in its value increasing materially, he should take the difference between its actual cost and the market price of the same wood before converted into pulp and paper as his profit on the timber transaction, and not use this surplus to make himself believe that his pulp and paper mill operations are very much more successful than they actually are. Moreover, as in respect to other items, unless raw materials be charged at their market value, there can be no basis of comparison between the cost figures of different plants.

Seventh—There appears to be no definite point recognized by all the mills at which "finished" expense begins. In some it is made to include rewinding labor at the paper machine, and the plugging of rolls; while in other cases these items are omitted.

Eighth—There was found to be great lack of uniformity in arriving at the weights of paper products, some of the mills figuring cost on the machine report weights, some on machine weights less a certain percentage to cover loss in finishing, the percentage varying in different mills, and still others on invoice weights after taking increase or decrease in inventories into consideration.

Commenting on this the editor of "Paper" says:

"From all we can learn of what has been done, the members of the Wrapping Division who have undertaken to correct their methods and standardize the same are greatly pleased with the result. If nothing else has been accomplished by their effort, they have at least demonstrated the necessity for action, which we hope and believe cannot fail sooner or later to induce the other divisions of the association to take similar steps, and thus we may ultimately have what seems to be exceedingly important—standard methods of cost accounting among the manufacturers of all the divisions."

In many cases elaborate systems have been devised that required more system to operate than the office itself. We need simple and accurate methods of cost accounting which are standardized as the American Association point out.

OCEAN FREIGHT RATES

The Government at Ottawa has decided to take some action in the matter of ocean freight rates. This has been a grievance against which shippers have frequently protested with no avail. Ocean freight rates have been constantly increasing during the last few years. The steamship interests have no claim for this advance but those familiar with the shipping conditions know that much more freight is offering than the accomodation can handle. Naturally rates have increased and at an alarming rate. One instance of the effect this is having is the English deal trade which was one of Canada's best lines in England. Rates have so cut this and other lumber that the mills are forced to market their product elsewhere. In pulp and paper we ship a great deal of certain grades to England and this in rapidly increasing tonnage. We must look more and more in this direction for an outlet for our products.

The rates to Canada from the other side are so low due to the fact that the bulk of the trade offering is in the opposite direction that Canadian paper makers have to stand the keener competition of old country paper and pulp especially book papers and sulphite pulp. We are not, either, given an equitable footing in the freight market for the grades or lines we can best manufacture.

Steamship lines drawing subsidies from the government are not under the control of the railway commissioners as the railways are, hence our means of redress is much less effective. The Government must be commended, however, in any relief which it may secure from conditions rapidly becoming burdensome.

EDITORIAL COMMENT.

The United States Tariff, as reported to the Senate, is 4.22 percent lower than the Underwood Bill and 27.64 percent lower than the Payne Aldrich tariff.

Few changes have been effected by the Committee in the paper schedule but the anomaly of the sulphite restriction is still included. It is hoped wiser councils will prevail and this be removed.

Leaders in the Recent Forestry Convention at Winnipeg

E. J. ZAVITZ
Provisional Forester for Ontario
JAS. WHITE
Sec. Can. Comm. of Conservation

R. H. CAMPBELL
Dominion Director of Forestry
CLYDE LEAVITT
Forester Can. Comm. of Conservation

H. R. MACMILLAN
Chief Forester of British Columbia
G. C. PICHE
Chief Forester of Quebec

DEVELOPMENT OF THE STRAW PULP INDUSTRY

By ERICH RICHTER, D.Sc., D.E.

Leaving waste paper aside, one of the raw-materials in first practical use, was straw. There are reasons to believe, that paper was manufactured from it as early as 1750. At the time of a rag famine, 1756, straw was used in German mills. It was, however, not treated chemically, but simply crushed or ground in raw condition. As said already, Mr. Koops tried to bring it into use in England. In France several processes for treating straw more or less chemicas were developed. In one case, the straw was put in a pit in the ground in full length, together with 10% caustic lime solution. It was left there for about 8 days, after which time it was taken out and exposed to air, for about ¾ days. After grinding, it could be used directly for paper. No size was necessary, as it contained its owh sizing-material. The color of paper made from such straw was the same as the raw-material.

In another process, mostly used in southern France, practically the same lines were followed. The time used for the reaction between the straw and lime solution, however, was considerably shortened, by means of steam, the latter being introduced in the pit. After 24 hours, the liquid was drained off the straw exposed to the action of air for several days, well washed and ground. The finished product of rm this process if of course of much better quality than the former one. On account of the better papermaking qualities and greater value, often a small percentage of other material, like hemp, or jute is added, before making paper out of it, thus giving it more strength. Size had to be added, as the hot lime solution dissolved all the sizing-material, originally present in straw.

All these processes, however, did not give entire satisfaction to the paper-makers, as the resulting material could not be used for the best grade of paper and it was not until 1854 that this problem was definitely solved. It was Marie Amedee Charles Mellier in Paris, who first introduced a new process for treating straw, which proved a success. Others had made more or less successful attempts to work the same prinicple, but owing to the rather low yield and inefficient machinery, they failed.

Mellier's process as described by him, reads about as follows:—"Straw or other fibre material is cut in short pieces, softened in warm water washed and filled in suitable boilers. I am using a rotary digester, which can be heated by indirect steam. As I have found that it is important to cook at a temperature which corresponds to at least 70 lbs. pressure I prefer to use a pressure of 80 lbs., although such a high temperature is not absolutely necessary. The quantity of caustic soda used is equivalent to about 16% of the straw or other raw-material, used. The digester being filled with straw and soda solution, is closed tight and heated by indirect steam. I prefer to use steam coils, especially because the condensed water would dilute the soda solution too much. The digester is given a revolving motion, about ½ turns per min. After reaching the desired temperature and pressure the digester contents are boiled for 3 more hours. The mass is then cooled and emptied out in suitable vessels. The resulting pulp is washed first in hot, later in cold water until the draining liquid is perfectly clear. I then treat the fibre, for about 1 hour in warm water, the latter containing a certain amount of sulphuric acid, about 2% of the weight of the fibrous material. The washing is finished with cold water. The resulting pulp can be easily bleached and it will be found, that only a small amount of chloride of lime is necessary."

Mellier also recommends to thoroughly clean the straw before cooking, especially to separate it from dust, knots and other impurities. The knots are often a source of trouble. Containing more lignin matters, as we might call it, they are less easily attacked by the soda-solution than other parts. If the finest grade of strawpulp is desired, it is necessary to remove these knots. This is easily accomplished with a blower. The knots being much heavier than the rest of the straw, they are deposited first, while the dust is taken farthest.

One of the most troublesome impurities, however, is the grain, of which more or less is always left with the straw. While the uncooked knots may be remoced on screend, the grain after boiling forms dextrin and other slimy substances, which can not be screened and which frequently form transparent specks on the paper made from such straw-pulp.

Mellier used a soda-solution showing 2-3 degr. Be or Spec. Gravity 1.013- 1.020. and 70 galls. of it decomposed about 100 lbs. straw. The spent liquor was discharged in a nearby river. The price of the soda being rather low it was not deemed necessary to recover it. Later several futile attempts were made to use this liquor, which of course contained more or less free caustic soda. Tessie du Motay made experiments on a rather large and expensive scale to recover the soda, by decomposing the black liquor with carbonic acid. However, he was not successful. It is to be noted, that this carbonic acid method has come again into use only recently although the object this time being less far reaching, and the cooking process somewhat modified. Carbonic acid introduced in black liquor at a certain temperature about 80 degr. C. serves now to precipitate at least some of the organic matter which can be filtered off and converted into useful substances, as Methylalcohol.

Sodium chloride has to be added, before the precipitation takes place.

The nuisance caused by the discharge of the rather strong soda liquor in running streams and the increasing price of caustic soda and sodium Carbonate led early to the addition of a method for its recovery. The given way to effect it, was to evaporate the water and burn the organic matter off, the latter furnishing up to nearly one half of the heat required for total evaporation. From this time on, the history of the soda pulp process became closely allied with the history of those engineering problems, which were to effect the most economical evaportaion of dilute liquors, the more so, when another process of producing chemical pulp came into its successful stage and threatened the existence of the older soda process. It was only through the all around stability and through the solving of some engineering and chemical problems, that it was able to compete. It is the impossibility of using almost any kind of raw material to advantage which makes the soda process particular useful.

Some of the features of the soda recovery as developed during the last 50 years may be dealt with in brief.

In the earliest stages of soda recovery, the evaporation was conducted mostly in open pans and reverberatory furnaces, well known from the Leblanc soda process. But with the growing quantity which had to be operated, it was soon found, that these pans did not give efficient service. There was also a technical question which often prevented the successful finishing of the recovery. Perhaps it was as much a question of skill. While at times the liquor ash would melt after having burned off all the combustible, other times it would be still burning for hours, when it should be taken out. In the latter case it would be the cause of much nuisance as it gave off obnoxious fumes. The soda primarily used, was in most cases Leblanc soda and contained a certain amount of Sulphur compounds. These substances when heated with the organical matter contained in the waste liqour, become reduced and combined with carbohydrates which caused the nuisance. To overcome these difficulties, the last organic matter contained in the recovered soda was burned off in special furnaces. The inefficient evaporartion in open pans soon led to new apparatus and methods.

E. Porion of Vardreque tried to improve the process. According to his first patent the spent liquor was pressed through fine holes in a evaportion pan in such a way and arrangement, that it would pass in fine streams through hot gases. The efficiency of this apparatus was, however, low and after many unsuccessful experiments, Porion brought out an evaporator with a stirrer, the latter revolving at about 300 R.P.M. The stirrer was formed in such a way, that it should spray the liqour, thus insuring better contact between the solution and the hot gases, the latter coming form a combustion furnace. It is said, that the gases in a Porion evaporator leave the chimney with a temperature of 50-80° C. According to tests made in the mill of Dambricourt, frere, the evaporation was 11.8 lbs. water per lb. of coal.

In the seventies some mills in Great Britain used the so-called Ibotson apparatus, to evaporate their spent liquor. This evaporator consists of a number of pans arranged in such a way. that the liquid flows by gravity while the hot gases pass over it. The results with this evaporator in general have not been very good, however.

Albert Ungerer from Simmering, Austria, got in 1873 the English Patent for a towerlike evaporator. The liquor runs down on steel guys or chains, while the heat from the combustion furnace comes the opposite way. The same principle was used later on with the Henry Blackman evaporator.

The most successful apparatus ,however, was designed by Homer T. Y. Yaryan, from Toledo, O. who applied a new principle to his evaporator, in 1886. It is this the Yaryan multiple evaporator, working under diminished pressure. Since then, many different types of the same kind have been devised.

The propserity of the soda pulp mill depending to a large extent on the efficiency of the recovery system, it was soon realised ,that great attention must be paid to the latter. One of the most important things therefore is, to wash the pulp efficiently, and remove the soda solution with as little water as possible. In other words, the spent liquor going to the evaporator should not be diluted too much. Working on this principle, naturally it can not be avoided that more or less soda is left in the pulp and therefore lost. To prevent this loss, in the mill of DeNaeyer Co. in Willebrook, Belgium, an altogether different principle of recovery was effected .The pulp was freed from soda as much as possible and washwater and spent liquor after mixing, were used as feed water for boilers. When the liquor in these boilers reached 12°Be, it was blown in big cylinderical boilers, of which 8 were connected. The steam generated in the first one being used to heat the second and so on When the liquor reached 30 degr. Be, at which strength it can be ignited, it was run into the combustion furnace. DeNayers used the steam produced from these boilers, not only for cooking purposes, but also for steam engines. The soda in the feed-water having no influence on the quality of the steam, so long as the heating surface and the capacity of the boilers was kept larger than needed.

The heat from the furnace goes under and through a boiler, which provides steam to evaporate the diluted liquor. After passing the boiler, the gases having still a high calorific value, seve to heat fresh soda solution. The more or less concentrated liquid enters the apparatus and flows continually in opposite direction to the gases, entering the revolving part of the furnace in such a strength that it ignites.

With the advancement made in engineering in the last 25 years, a great number of new apparatus to effect an efficient evaporation have been patented and experimented with. The problem is to-day ,however, so widespread and of such importance, not only to the soda pulp, but to many other industries, not considering the growing interest which is given to it in the competitive process, the sulphite industry, that it would better be dealt with in a special treatise.

To-day strawpulp and straw-cellulose are still more or less essential for the cardboard and especially for the paper industry. It gives some peculiar qualities to the finer grade of paper, which can not be acquired with cotton or wood fibres. The possibility of bleaching it to a very high degree, the rattle it gives to the paper and the filling up of pores by its comparative short fibres, render it a valuable substitute for other fibre material. The yearly growth as a by-product of our most important foodstuff insures a fair supply and it is only a question of handling the straw and straw-pulp process to bring the end product on a reasonable competitive basis with the wood pulp, whose dominant position at present rests on the somewhat larger yield and on the abundant supply of wood, the result of a growth of many decades and perhaps centuries.

As to the yield of cellulose from straw, it is of course impossible to give definite figures. In practical mill work, an average of 40% fibre is mostly observed. Naturally this will vary 1. with the kind of straw used, and 2. with the condition of the soil on which it grew. The best results are attained by using straw which has been carefully sorted and freed from knots. The yield is then about 43%, while the knots give something like 38% fibres.

Some analytical results with different kinds of straw as as given by Dr. H. Mueller are the following:—

	Winter Rye	Winter Barley	Summer Barley	Winter Wheat	Oats	Maize
Water.............	14.3	14.3	14.3	14.3	14.3	14.0
Ash................	3.2	5.5	7.0	5.0	5.0	4.0
Fat, etc............	1.3	1.4	1.4	15.	2.0	1.1
Albumenoids......	1.5	2.0	3.0	2.0	2.5	3.0
Carbohydrates......	25.7	28.4	31.3	28.7	36.2	37.9
Cellulose...........	54.0	48.0	43.0	48.0	40.0	40.0

Peculiar to straw is the high percentage of ash and a fair amount of Silica whereas in the inorganical residue generally found in wood, the amount of Silica is very small. It is this same substance which makes the recovery of the sepnt liquor obtained from the strawboard process, very often a difficult thing Carbonic acid introduced in such liquor precipitates a gelatinous Silicilic acid with which nothing, however, can be done as it will readily block the filter.

In regard to Maize straw a number of experiments only recently have been made, in order to determine its suitability as a raw-material, Unfortunately some of the analytical tests differ so much on this subject, that nothing definite can be said. It may be mentioned however, that a mill in Austria tried to use Maize. The experiments were made on a practical and large scale, but without success. It appears therefore, that Maize straw can not be used advantageously Whether this is due to certain peculiar constituents combined with the fibre in such a away that the latter can not be separated properly with our present processes, or if the Maize straw really contains only 24% available fibre, as C. Schmidt found, the writer is unable to decide. It would probably be of some value, to not only settle this question analytically with our improved methods, but to investigate the practical possibilities of this raw material under different technical processes.

PAPER AND PULP UNDER THE MICROSCOPE

By SIDALL AND BACON

Special Series of Contributions to Pulp and Paper Magazine

CHAPTER VIII.

The illustrations given in the previous chapter, showing the transverse section of hand-made paper as compared with the section of an art paper, emphasizing the strong contrast in constitution, suggests a very wide field of interesting and original investigation on paper structure.

It would therefore be of interest to our readers to have a few practical hints on the methods which may be adopted for the cutting of sections.

The transverse sections of raw fibres are not difficult to prepare, and the utility of confirming an opinion arrived at in an examination of certain fibres in a normal manner by a further examination of the section, is well known. Thus the strong resemblance of jute to manila hemp has frequently been a source of trouble in the examination of paper containing these particular fibres.

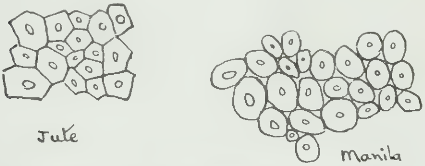


FIG. 1 Section of Jute Fibres and Manila Fibres showing difference in structure

The differentiation of RAW jute and RAW manilla hemp does not afford any special difficulties, but the treatment with soda followed by the beating process as in paper making destroys many of the special characteristics of the fibre, rendering the analysis of proportions present somewhat difficult, but the cross sections afford further evidence as to the identification. However, the preparation of the raw fibre for the purpose of cutting sections is one thing: and the preparation of a section of the fibres after they have been reduced to the short length indispensible for papermaking, is another. In the one case the fibres are long and easily manipulated, and in the other case the fibres are extremely short and require special treatment.

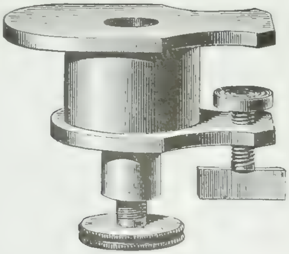


FIG 2 A simple microtome

Cutting Sections.

There are several forms of Microtome available for cutting sections, some of which are exceedingly elaborate and expensive. The section cutter shown in Fig. 2 is a simple inexpensive and ordinary apparatus, being very solid and rigid. It can be fastened to the edge of the working bench or table by means of the projecting lugs and hand-screw shown. The fibres or the paper suitably embedded, by methods presently to be described, is placed in the central hole of the apparatus and the material can then be brought flush with the top surface of the microtome and levelled off ready for section cutting. By means of a large mill headed screw with a specially fine thread the embedded material can be forced upwards above the surface of the plate so as to give sections of any desired thinness from one two-thousandth of an inch. The section is then cut by means of a razor passed over the surface of the microtome, removing in its passage a very thin section of the material under examination.

Mounting in Wax.

In many cases sections of paper required for temporary examination can most easily be cut by mounting in wax. We give a description of the process in detail.

The central hole of the microtome measures 1 inch in diameter. A small piece of glass tube, 1 inch in diameter and about 1½ inch in length, is used for the preparation of the was mount. A slip of paper ½ inch wide and about 2 inches long, doubled over for convenience into a V-shaped piece, is held in the centre of the glass tube which itself rests on a piece of cardboard, and melted paraffin wax is then poured into the tube until it is full, the paper being kept in a vertical position meanwile. When perfectly cold the little candle of wax is pushed out of the glass tube and adjusted in the microtome. The candle is forced upwards by means of the fine threaded screw until it projects beyond the flat surface of the microtome. A few sections are removed to get a perfectly smooth and even surface, and then a section of the required thinness cut by the razor. The razor must be perfectly sharp and kept moist with water or alcohol. The very thin section is placed on a microscope glass slide most of the wax is cut away by means of a sharp knife, and the small quantity still adhering to the paper washed away by means of Ether. The V-shaped piece of paper is then ready for staining and mounting.

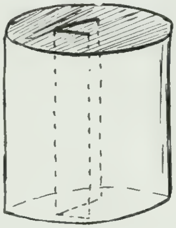


FIG 3 Wax "Candle" showing folded paper in position ready for section cutting.

Considerable practice is needed in the preparation of these sections to get a really satisfactory result.

(To be Continued).

A CHAT ON RECENT DEVELOPMENTS OF WOOD PULP MANUFACTURE

By ROBERT MARX, London, England

The manufacturing cost has been the vital question since the wood pulp industry was started, its importance has become more pronounced of late years with the increase in competition, the increased cost of timber, and the increased output of the individual pulp mills.

Among many others there are two elemental points connected with each wood pulp mill, which may be looked upon as immoveable fixtures, namely: the cost at which they can procure suitable wood, and their geographical situation fitting them for economical distribution.

There are two other points of paramount importance which can be materially influenced by those in charge of the mill:

Firstly, the question of cost of water power, its most economical employment, together with the amount of power used per ton of wood pulp made.

Secondly, the quality and quantity of wood pulp obtained from each cord of wood, a question which is very inextricably bound up with the details of the method of manufacture employed, the nature of the raw material, the waste permitted to go on, the machinery used, etc., etc.

It will be seen that these cardinal points could be easily subdivided into a long list of sub-divisions, but the present article is not intended to deal comprehensively with the whole question of modern wood pulp manufacture, but only with recent developments in a particular direction, which appear to gain increased importance as one goes into their details.

It has been shown on many occasions that the production of ground wood pulp in Canada and the United States requires more horse power per ton of wood pulp produced than is needed in Scandinavia, or in Europe, generally.

The cause is largely due to a difference in yield, a difference in the details of making, a larger waste and the necessity for economy in labor.

The circumstances which govern the manufacture in Europe and America respectively vary so much, that it would not be possible to bodily transplant European methods into Canada or the United States. In fact, many attempts made in this direction have failed, and it has been necessary to discover improvements and remedies for defects, specially suited to the circumstances under which our industries are carried on.

The question of waste and its remedy may serve as an illustration. It is safe to say that on this continent between 7 and 10 per cent. of wood, after it has been barked, are lost in almost every mill, mostly as slivers, in effluents, etc. It has been attempted, over and over again, to recover this waste by employing even the best of those refiners which have given and are giving excellent results in Europe, but practically without exception all these refiners have failed, so that consulting engineers, as well as the owners and managers of wood pulp mills, have practically given up the idea of employing refiners of the type characterized by continuous action.

The search for a remedy has brought forward the Marx refiner, which is not a continuous acting machine, but one rather in the nature of a giant beater, of very high capacity, and although intermittently acting, an apparatus of the largest size is capable of dealing with as much as 36,000 lbs. in 24 hours, so as to turn this quantity of slivers into a ground wood pulp better than the usual "A.1" quality.

For the purposes of the present article, we will not consider the possibilities of this machine for the utilization of sawdust and other mill waste, nor for its employment on sulphite or sulphate knots, from all of which it is capable of producing a relatively high grade pulp which are subjects of large magnitude in themselves. We will confine ourselves to discussing its use in ground wood pulp mills, because it solves not only the vexing question of waste, but is in all likelihood destined to materially influence the method of manufacture at present employed and to improve the quality of ground wood pulp, at the same time reducing first cost.

In order to avoid waste and slivers as much as possible, and also in order to ensure a ready use or sale, it has been found necessary to grind wood pulp fairly fine on the grinders.

Again, in order to reduce the quantity of silvers it has been found advisable to employ screens of relatively large diameter holes.

The desire to make a fine ground wood pulp on the grinders, capable if necessary of being run into the mixing tanks, so as to be formed into a sheet of news without beating, is probably responsible for the relatively low output of each grind stone unit, and the relatively high poewr absorbed by it.

The average power absorption, in Canadian and United States grind stones amounts to 70 or 80 h.p. per ton of wood pulp. In a few mills it may be a little less, but in a good many it is considerably more.

In Europe, where our big water powers are missing, and where some of the largest ground wood pulp mills are run by steam, thus stimulating economy in power we frequently hear of a ton of wood being produced with 50 h. p., and that figure also including the power necessary to drive the accessory machines.

In some measure the better result is due to larger grind stones and other causes, but a good proportion of it may be attributed to the fact that where we obtain 100 tons of useable or saleable ground wood pulp and run, at the same time, 7 to 10 tons of slivers and the like to waste, our competitors in Europe obtain from 107 to 110 tons of good wood pulp.

The fact that coarse grinding produces more pulp per h. p. used is generally recognized, the mill obtaining from each 1,000 h. p. 13 tons of fine wood pulp can easily make 16 tons of the coarser material from the same power and practically the same installation.

The Marx Refiner actually puts a premium on coarse grinding, as well as the employment of smaller mesh screens, than those used at present, since the product obtained by its aid from the coarser material or from slivers is of a quality actually better than "A. A." Wood pulp, and in a state quite ready to go into the stuff chest of the paper-making machine, even in such mills where the only object is to produce the highest possible grade of newspaper.

We have already said that this machine resembles a giant beater, many details of which in construction and working are protected by patents, and a few words of description may not be out of place. It consists of a large reinforced cement trough, of varying size, the largest of which holds as much as 3,000 pounds dry wood pulp, or slivers, at 7 per cent. consistency. The walls and channels have a peculiar shape, so as to ensure an intimate mixture of the contents ,and in order to provide for a rapid and uniform circulation. There is a continuous fall from the saddle right to the front rise, or, in other words, covering practically the whole race of the refiner.

In place of the ususal narrow mid-feather, this trough has a wide opening in which the drive is most conveniently arranged, and there is even sufficient room in this to hold an electro motor, so as to drive each refiner separately and independently.

A very large Basalt lava stone roll is placed in such a position in the trough that on its issue from it, the stuff is practially unaffected in its flow by the curvature of the walls.

This Basalt lava roll is provided with plain segments, without grooves, in order to obtain more extensive working surface, and below it is a broad, massive Basalt lava stone bedplate also without grooves, so as to get a powerful grip on the stuff to be treated, and a most extensive brushing or drawing out effect on the fibres.

The construction of the roll, as well as the bedplate, are such that it is practically impossible to damage the stone.

Basalt lava tackle cannot cut even the weakest fibre,. and merely reduces the fibre bundles in thickness or diameter, at the same time retaining the original length of fibre and hydrating it rapidly.

Since the action of the grind stone is a rasping one, loosening from the log many particles of varying length and greater thickness than is serviceable for good wood pulp, it is obvious that the action of the grind stone is very well compensated by the action of Basalt lava stone. The slivers, or coarse fibre bundles, which are treated in the Marx refiner are turned into very finely subdivided and well hydrated fibres, of the full length in which they go into it, whilst the hydration causes them to resemble, in structure as well as in felting qualities, to some extent, the fibres of chemical pulp.

The Basalt lava roll carries a lever, on which is arranged a moveable weight, in such a way as to counter-balance as much of the weight of the roll as is desirable to obtain a pulp of just the slow or free character that may be needed. The whole adjustment is such that the most varying materials can be dealt with, and the pressure to which they are exposed in their passage between the roll and bedplate not only adjusted to a nicety but since the lever is also graduated similar refining results can be repeated at intervals of any time.

We have referred to the fact that the dry contents of the largest standard tize is 3,000 lbs. at 7 per cent consistency, but where the conditions of manufacture in mill will permit this, much higher consistencies can be employed with advantage.

The travel of the stock in a Marx Refiner is over 50 feet per minute, with a furnish of 5 per cent. consistency, and even at 9 per cent. consistency exceeds 30 feet per minute.

The power taken for the 3,000 pounds size is below 100 h. p. even with the thickest furnish. This apparatus is capable of treating 36,000 pounds per 24 hours on a basis of a treatment for each individual charge lasting two hours.

As a matter of fact, many kinds of slivers and all coarse wood pulps can be frequently treated in considerably less time, which means an important increase over and above the 36,000 pounds in the output.

A factor of much influence on production is the provision of adequate arrangement for effecting rapid filling and emptying. The filling is usually governed by existing conditions in the mill, and the emptying in the Marx Refiner is effected by means of a very large valve, operated from the exterior of the apparatus.

For the sake of argument, the conservative output of 36,000 pounds, or 18 tons per 24 hours, may be assumed at a power consumption of 100 h.p.

Under present conditions the stuff rejected by the Centrifugal Screens with .065-inch perforations amounts on average to about 7 per cent. to 10 per cent.

Now, these rejections really form the pick of the fibre, after being treated in the Marx Refiner, and, since this treatment is effected at very low cost, it will obviously pay to increase the quantity rejected by the screens, which is best done by, firstly, coarser grinding,and, secondly, employing perforations of smaller diameter in the screens.

The coarser grinding means a stronger fibre and, above all, a materially higher production per stone, as well as per horse power absorbed.

Smaller perforations in the screens means finer fibre and a more uniform product, with all its consequent advantages.

In Europe ground wood screen perforations average .032 in. diameter, representing about one-half those at present in use on this side. We will, however, assume that the screen perforations are only reduced to .040 in., and that the total screen rejections under the new conditions of coarser grinding and better screening are increased to 25 per cent. of the total grinder output.

Whatever the quantity passed through the Marx Refiner may be, its power consumption does not exceed 100 h. p. for 36,000 pounds, or just about 5½ h. p. per ton of product. Distributed over the whole mill output, and on the assumption that 25 per cent. are treated in the Marx Refiner, this is equivalent to less than 1½ h. p. per ton of ground wood produced, a negligible fraction of the power consumption of the grinders.

When these power figures are set up against the additional production resulting from the coarser grinding, it will be found that a considerable power economy has been effected, or in other words, that the production from each unit has been materially increased.

Within reasonable limits, we may say, the coarser the grinding and the greater the rejections from the screens, the more power will be saved and the greater will be the improvement in the quality of the ultimate product. In addition to all this, we have not only reduced the cost of production, but also effectively removed the vexing question of sliver waste.

Although these refiners are not continuous-acting machines in themselves, they act in practise as such. It is only necessary to collect the coarse wood pulp and the slivers in a reservoir above the Marx Refiner, allowing them to flow to it by gravity in such a way that the apparatus can be filled within a few minutes and emptying it through a valve of ample section, provided in the trough, into another reservoir, or straight into the mixing tank of the paper machine, an operation which can be carried out within less than five minutes.

For a long time slivers have been allowed to flow down the river. In many mills they are disposed of in this wasteful way to-day. A cure for this waste has long been sought for, and, in solving this problem in a manner suitable to any ground wood pulp mill, whatever its raw material or working conditions may be, the Marx Refiner has done more than was originally intended, and is likely to modify not only the present method of manufacture, but also to increase the standard of quality of our mechanical wood pulp, so as to make it more suitable for immediate use in the paper mill, adapting it, at the same time, to better suit the requirements of news machines running at a very high rate of speed.

Process Engineers, Ltd., of McGill Building, Montreal, will readily give any further information on this interesting apparatus.

When ground wood pulp was first commercially produced it met with persistent and hearty opposition from all paper makers as wholly unworthy of use in a decent sheet. Since then a heap of water has flown down the St. Lawrence, and the skill of the paper maker is judged by the quantity of mechanical he can manage over his fast-running Fourdrinier He is considered specially clever, if he can dispense with the use of old-fashioned beaters for which, nevertheless, we retain considerable consideration. The changes due to the Marx Refiner may possibly be such as to permit a good sheet of news to be made without sulphite, and from ground wood only, a proposition not to be sneezed at when sulphite prices are on the high water mark.

THE JOURNAL OF COMMERCE

The first issue of the enlarged "Journal of Commerce" with which is incorporated the "Shareholder," under the editorship of Mr. J. C. Ross, M.A., made its appearance last week. The number is a fair index of what may be expected from the amalgamation of two of Montreal's oldest weekly publications, the "Journal of Commerce" established in 1785 and the "Shareholder" in 1878. The new paper will undoubtedly make a large place for itself in the journalistic field. It is a commercial paper in the broadest sense, treating not only of the security market, but also covers the fields of banking, insurance, transportation, commerce and manufacturing. A special feature is an illustrated section, describing Canada's great basic industries, the one this week being devoted to the textile industry written by the Editor and Associate Editor of the "Canadian Textile Journal." Other contributions include articles from the pen of O. D. Skelton, Professor of Economics in Queen's University; a London letter by Mr. W. E. Dowding an interesting article on the Canadian West-Indian Pact and a comprehensive article on the struggle between Montreal and New York for the grain trade of Western Canada. Many other articles of interest and value to business men are found in the number.

The "Journal of Commerce" and "Shareholder" have lately been taken over by interests that already own and publish several well-known technical journals, including the Canadian Mining Journal, the Pulp and Paper Magazine, the Canadian Textile Journal and the Canadian Miller and Cerealist. These papers under the efficient management of Mr. J. J. Harpell, B.A., have all been successful in their respective fields, and there is no doubt but that the "Journal of Commerce and Shareholder" under the same management will share this success.

Mr. J. C. Ross, the editor of the "Journal of Commerce and Shareholder" is an honor graduate of the University of Toronto, and has had a wide journalistic experience. For several years he was on the staff of the Toronto "Globe," the last six being spent as resident correspondent of this paper in Montreal, Mr. Ross has also been a frequent and prominent contributor to American and British periodicals on financial and economic subjects.

This week's issue contains an elaborate illustrated write-up on "Canada's News Print Industry."

The first part of the article which deals in a general way with the industry shows that Canada now produces over 1,300 tons of news print per day and by the end of the year will have a daily production of over 1,700 tons. The production increased 48 per cent. in 1912. The second part is devoted to a description of the newer and more up to date mills. The conclusion arrived at is that Canada will eventually dominate the news print trade of the world.

NEW BRUNSWICK CROWN LANDS

New License Fees and Bonus payments fixed by the new law recently passed by legislature in New Brunswick has just been announced, becoming effective August 1st.

There are 10,057 square miles of Crown timber land under license in New Brunswick at the present time, and it has been classified under the new act approximately as follows:—Class A, 6,000 square miles; Class B, 3,000 square miles; Class C, 1,000 square miles; Class D, the balance.

The bonuses for saw mill licenses have been approved as follows:—Class A, $100 per square mile; Class B, $75; Class C, $50; Class D, $20. The licenses are for a period of twenty years and are renewable for a further period of ten years.

The bonuses for pulp and paper mill licences have been fixed and approved as follows; Class A, $130 per square mile; Class B, $100; Class C, $65; Class D, $30. These licenses are for a period of thirty years and are renewable for a further period of twenty years.

The payment of the bonus does not affect the payment of the present mileage charge of $8 per square mile per annum, and the stumpage rates.

Under the provisions of the act the bonuses are payable as follows: Saw mill licenses—50 per cent. on August 1, 1913; 50 per cent. August 1, 1923. Pulp and paper mill licences—33 1-3 per cent., August 1, 1913; 33 1-3 per cent August 1, 1923; 33 1-3 per cent. August 1, 1933.

The new scale of stumpage rates per thousand feet, which goes into effect August 1, follows:

	New	Old
Spruce, pine and cedar.	$1.50	$1.25
Hardwood.	1.25	.80
Hemlock.	1.00	.40
Fir.	1.20	.80
Railway ties (each).	.05	.02

"I am not in a position to state just what the financial returns to the Province from the bonuses on the license will amount to" said Premier Flemming, "but if all saw mills licences and all license holders came in under the new licenses and the provisions of the new bill, the bonuses would produce probably between $700,000 and $800,000. Only a portion of that amount would be paid at present.

WAYAGAMACK NET PROFIT $151,773.

At the annual meeting of the Wayagamack Pulp & Paper Company at Three Rivers J. N. Greenshields, president of the company, recorded a net profit for the first six months' operations, from January 1st, last, to July 1st, last, at the rate of 6 per cent. on the common stock. The net earnings of the company for the afore-mentioned period were $256,773. Bond interest of $150,000 was deducted leaving a net profit for the company of $151,773.

Prior to the annual meeting, which was called for 3 p.m. all the shareholders present, one hundred and fifty in number, were taken on a tour of inspection of the plant, and all expressed the opinion that they were perfectly satisfied with the conditions prevailing and the methods of operation.

Among those present, were: James Reid Wilson, Gordon Strathy, J. McKergow, J. W. Pyke, A. Haig Sims, C. J. Binmore, William Lyatt, C. Simpson Garland, Col. E. W. Wilson, R. A. Pringle, M.P.; D. O. Lebatt, J. R. Wilson, Hon. Mr. Girouard, W. T. Rodden, William McLimont, of Quebec; Hon. D. E. Amiot, of Quebec, Cyril Tassier, of Quebec, and T. G. McCoombe of New York.

At the conclusion of the meeting, the shareholders embarked on the evening train for Montreal.

Among the guests was Mr. T. J. Stevenson, sales manager for the Riordan Pulp and Paper Co.

WHO'S WHO IN THE CANADIAN PAPER INDUSTRY

The Third of a Series of Monthly Articles in the Pulp and Paper Magazine

MAJOR JOHN R. BARBER, Georgetown, Ont.

By W. A. Craick.

It will be pleasing news to the members of the Canadian paper industry that the veteran paper manufacturer, Major John Roaf Barber, of Georgetown, is slowly recovering from the serious illness which laid him out during the past winter. Mr. Barber has been so long associated with papermaking and that in so prominent a capacity that his physical well-being is a matter of interest to all members of the trade throughout Canada.

The second son of a second son, the future paper manufacturer was born on July 5, 1841, in the old family mansion at Georgetown, on the site of which his own house now stands. The Barbers,—four brothers and one sister,—had practically made the town. They had come to it from Crook's Hollow in 1837, when the place could not boast more than three houses and stood in the midst of a howling wilderness. Here they had first engaged in woollen manufacturing and then had added a foundry and machine shop business as the needs of the locality grew.

JOHN ROAF BARBER

Born July 5th, 1841, at Georgetown Ont.

1912 President Toronto Paper Co., Canada Coating Mills, Wm. Barber & Bros.; Barber-Ellis Ltd. Late Director—Anglo-American Fire Insurance Co.; Nipigon Pulp Co. Hon. Major (Canada Militia). Medals. Fenian Raid 1866, Long Service (1866-1906); National Club, Toronto.

John R. Barber was sent to the Georgetown Academy along with his brothers and cousins and later studied at a private school, it being intended that he should eventually go to England, attend a military college and enter the army. But the best-laid plans often go wrong and it was to a fire that Mr. Barber owed his change of destiny. To trace this out one must follow the development of the Barber Brothers' industries for a few years.

About the year 1853 a Scotchman by name David Forbes had started a paper mill in Georgetown, renting building and power from the Barbers. He had found the undertaking too heavy for him and had transferred his interest to the brothers. James, the second brother and father of John R., had already had some practical experience in papermaking in the old paper mill at Crook's Hollow and he volunteered to continue the enterprise. John was then twelve years of age and was pressed into service. He well remembers the production of the first paper in the old mill, which by the way is still standing and continues to form part of the Barber plant. It was an order for three carloads of straw wrapping for Buntin, Reid & Company, Toronto.

The Grand Trunk Railway was being built from Toronto to Guelph at the time and the Barbers were busily engaged in manufacturing a variety of ironwork for the contractors. There was no regular train service and when it came to shipping the wrapping paper, the best equipment that the railway could send were flat cars used in the construction work. Three of these were loaded. To guard against the destruction of the paper by sparks from the wood-burning locomotive, young Barber and some other employees of the mill boarded the cars with buckets of water and rode all the way to Toronto as a volunteer fire brigade.

After working off and on in the mill for some years, alternating his school attendance with the discharge of various duties, the time drew near for him to go to England. All was practically in readiness when two disasters overtook the Barber enterprises in one year. Among their undertakings was a large woollen mill in Streetsville, which was in reality a consolidation of the woollen mill in Georgetown and a mill which had been started by Robert Barber in Streetsville in 1843. This mill was totally destroyed by fire in 1861, entailing a heavy loss. The same year a boiler blew up in the paper mill at Georgetown. Following the first disaster one of his uncles who assisted his father in the management of the paper mill hurried to Streetsville, leaving his duties in the care of his nephew. He did not return and so John Barber, then a young man of twenty, remained in the business as his father's right-hand man.

James Barber lived until 1880. Up to 1869 he had conducted the paper mill in partnership with his three brothers and a brother-in-law, Benjamin Franklin. The partnership was in its way unique. For thirty-nine years the five of them had owned everything in common and had carried on a large and varied business without a settlement. Now this utopian arrangement was terminated. James became the sole proprietor of the paper mill and the others took over such other industries as they cared to possess.

As his father grew older John Barber took a more and more active part in the management of the business. His duties led him frequently to Toronto and here he struck up a warm friendship with Mr. John F. Ellis, who was at the time bookkeeper in the manufacturing stationery establishment of A. Dredge & Company. This firm were large customers of the Barber Company, but in 1876 they got into difficulties and assigned, leaving the Barbers among their heaviest creditors.

A meeting of those interested being called, Mr. Barber approached his friend, Mr. Ellis, and asked him how he would like to acquire the business. Mr. Ellis replied that he would be very much pleased to do so, if he could get the necessary backing. An arrangement was thereupon made that sufficient Barber capital would be available in case he wished to make an offer.

The creditors met, with James Barber in thec chair, Mr. Dredge was present and was asked if he had anything to suggest. He made a small offer for the assets, stating that it was the best he could do. He was then allowed to retire while the creditors deliberated further. No sooner had he left the room than Mr. Ellis rose and put in an offer at a higher figure. An attempt was then made by his lawyer to allow Mr. Dredge to bid again, but the meeting, which understood that the Barbers were back of the move, refused to agree and within half an hour Mr. Ellis was in possession of the business.

In the new company the Barber interests were represented by James Barber, jr., who was thus the original partner in the firm of Barber & Ellis. John R. Barber, in reality the originator of the concern, superseded him shortly afterwards. His association with Mr. Ellis continued for many years and it is gratifying to know that there was never a hitch or a misunderstanding between the partners. They separated a few years ago with expressions of the highest esteem, Mr. Barber selling out his stock with the exception of a single share which presumably he continues to hold as a sort of a souvenir.

He had meanwhile become associated with the Riordans in the Toronto Paper Mfg. Company and for a lengthy period acted as its president and manager. Outside of the home mills in Georgetown this connection was his prinicpal venture during his long business career. There were several other companies and undertakings which he supported, but the Georgetown mills and the plant of the Toronto Company were his chief concern. The more recent transfer of these properties to the control of the directors of the St. Lawrence Paper Mills Company, has relieved him of all active association with the paper industry.

Major Barber is a fine type of business man, upright in his dealings, generous in principles and kindly in disposition. He has been a good friend in his day to the weekly newspaper publishers of Canada, to whom he has sold extensively. Few are aware how much he has lost through helping the printers to weather hard times. He is a man who would rarely sue for a debt unless the delinquent customer had shown himself to be dishonest. His benefactions have been ceaseless. He has always taken a fatherly interest in his mill-hands and has never turned off a deserving employee even in the midst of depressions.

During the last years of the Ross Government in Ontario, he was induced out of friendship for the members of the liberal ministry to contest Halton County for them and was returned to the Legislature for that riding. But he has never been what might be called an active politician. His interest in party politics has been mostly of the arm-chair variety and on the question of protection, at any rate, he has usually supported the conservative side. Prior to his experience in Parliament he had served as reeve of Georgetown for a consecutive period of ten years and he had also shown his sympathy for local affairs by acting on the High School Board and as president of the Mechanics' Institute.

He owes his rank of major to service for many years in the militia as an officer of the 20th Halton Rifles. As a young man he participated in the defence of the frontier against the Fenians for which he was granted a medal. He also wears a long service decoration and to this extent at least has carried out his early military inclinations.

His tall erect figure has long been familiar to many of Toronto's business men. He occupied an office in the Mail and Empire building for several years and was frequently seen on the street. He was most unostentatious, moving about in a quiet and dignified fashion and impressing one with the solidarity and worth of his character. To-day in his enforced retirement he is certainly not forgotten by a host of friends, who are perhaps more numerous than he imagines.

PAPER EXPORTS OF CANADA EXCEEDED $6,000,000 IN YEAR

The official returns of the exports of paper and pulp for April show the highest exportation of print paper with the exception of the two months of March last and November 1912. Pulp exports on the other hand are now, mechanical pulp showing the lowest of any month for a year past with the exception of the short month of February, while chemical pulp showed a considerable falling off from March.

The following table shows the course of the export trade in pulp and newsprint during the last twelve months. Only the values of the exports are given. Prices were generally higher in April last than they were a year previous. Chemical pulp averaged $1.818 per cwt. in May 1912, and $1.923 in April 1913;mechanical pulp averaged $0.693 in May 1912 and $0.734 in April 1913; print paper averaged $1.947 in May, 1912, and $1.949 in April 1913, but took a dip during the interval to $1.918 in October. Over 20 per ceut. of the paper export is to countries other than the United States.

	Chemical.	Mechan.	Print paper.
May.	$ 170,843	$ 226,698	$ 285,400
June.	154,753	195,134	280,981
July.	146,440	252,043	385,038
August.	147,899	363,455	370,462
Sept.	158,484	518,607	397,061
Oct.	192,017	401,567	500,550
Nov.	178,032	331,625	631,227
Dec.	201,410	402,751	567,284
Jan.	182,576	159,371	515,072
Fevb.	188,736	131,429	579,186
March.	227,731	284,692	920,126
April.	202,110	143,126	594,554
Total.	$2,151,031	$3,410,498	$6,026,941

The exportable surplus of the newsprint industry in Canada has thus more than doubled during the year. Thls industry alone is bringing into Canada annually at least $3,000,000 more than it was a year ago, of which probably no more than one-third is required to pay cost of labor and materials leaving something like $2,000,000 per annum to pay interest and dividend charges on the capital invested. Thus the export output of this one industry alone affords an excuse and justification for thrity-five or forty millions of dollars of new capital obligations.

PULP WOOD IMPORTS

Pulp wood imports into U. S. have been increasing at a tremendous rate. In the eleven months ended May, 1911, they aggregate a value of $12,702,634; in the eleven months ended May, 1912, they rose to a value of $13,052,247, and in the eleven months ended May, 1913, to a value of $15,102,158. The greatest increase was, of course, in unbleached sulphite, the imports of that article increasing over $2,000,000 in the 1913 period as compared with 1912. Canada doubled her exports of unbleached chemical to the U. S. in the 1913 period, but reduced the value of her bleached chemical pulp shipments by over $50,000. We also sold less ground wood to U. S. the value in the 1913 period being $2,825,490, as against $3,271,929 in the 1912 period.

FAVORED NATION'S DECISION

(Special to Pulp and Paper Magazine)

Washington, D.C., July 25, 1913.

Assistant Secretary of the Treasury last Saturday made the announcement here that the Department had decided to acquiesce in the decision of the Customs Court in the Canadian Wood Pulp Case and to proceed immediately to refund the tariff duties collected on importations of pulp and paper from countries enjoying favored nation treaties with the United States, since the passing of the reciprocity Act on July 26, 1911. This refund will amount to approximately $3,000,000. The order of the Department, as issued by Secretary Curtis, reads as follows:

> "The Government has decided to acquiesce in the decision of the Court of Customs' Appeals in the most favored nation clause affecting all pending cases of importations of wood pulp and print paper, and also as affecting future importations covered by the same principle until further notice. Appropriate instruction will be issued to customs officers. In accordance with the decision, refunds on all pending cases will be made in ordinary course, and will amount to approximately three million dollars."

In reviewing the situation ,it will be recalled that in the cases of the American Express Company et al. vs. United States, and Frederick Bertuch & Co., et al., vs. United States, which resulted in the above order of the Treasury Department, there were involved the importations of chemical wood pulp and sulphite wood pulp from Norway, Russia, Austria-Hungary and Germany. Free entry was claimed on the ground that by virtue of the favored nation clause in existing treaties between the United States and these countries, when construed in connection with Section 2 of the Act of July 26, 1911, entitled "An Act to promote reciprocal trade relations with the Dominion of Canada, and for other purposes," free importation was provided for.

The entries were assessed with duty under paragraphs 406 and 409 of the tariff act of 1909. The Board of General Appraisers overrule the protest and the importers appealed to the United States Court of Customs Appeals.

The test cases hinged upon Section 2, of the Act of July 26, 1911, which provided that:

> Pulp of wood mechanically ground; pulp of wood, chemical, bleached, or unbleached; news print paper, and other paper, and paper board, manufactured from mechanical wood pulp or from chemical wood pulp, or of which such pulp is the component material of chief value, colored in the pulp, or not colored, and valued at not more than 4 cents per pound, not including printed or decorated wall paper, being the products of Canada, when imported therefrom directly into the United States, shall be admitted free of duty, on the condition precedent that no export duty, export license fee, or other export charge of any kind whatesover (whether in the form of additional charge or license fee or otherwise), or any prohibition or restriction in any way of the exportation whether by law order, regulation, contractural relation, or otherwise, directly or indirectly), shall have been imposed upon such paper, board, or wood pulp, or the wood used in the manufacture of such paper, board, or wood pulp, or the wood pulp used in the manufacture of such paper or board.

After an exhaustive review of the cases, lasting over eighteen months, the court remarked that it had been suggested that it was conceivable that the Government had given Canada concessions contained in Section 2 as an inducement to introduce and try and pass the reciprocity schedule. Replying to this, it was stated that it was sufficient answer to this contention to say that there is no evidence afforded by the act itself that such was the inducement or that there was in fact any agreement to introduce and try to pass the reciprocity schedule based upon the consideration of Section 2. Furthermore, such consideration is negative by the fact that Section 2 was made effective immediately and independently of any action by the Canadian Government.

With respect to the contention that there is in Section 2 evidence of a sufficient consideration which brings the case before the bar within the rule established by courts and in diplomatic correspondence of the Department of State that where a special privilege is granted to a particular nation upon a peculiar consideration passing from such nation to this Government, an agreement permitting free entry of an article is not in conflict with the favored nation clause, and that illustrations in support of this fact had been pointed out by reference to certain cases, the court asked if special concessions had been exacted of Canada as a condition to free importation of wood pulp and paper which would not apply to other paper of other countries in like circumstances.

Answering this query the Court stated that the language of Section 2 above quoted was open to two possible constructions: The first being a construction which affixes as a condition to free entry the establishment of free exportation of all wood pulp and pulp wood from all parts of Canada. The second construction is one which attached the condition to the specific importation and results in admitting free all products named whenever such product, untaxed, has been produced from wood also untaxed. The court further stated that it was to be noted that the fitsr construction has not been adopted by the Treasury Department. The second has obtained, and the court agreed that the construction which has obtained since the enactment of the statute is the correct one.

Following out this line of argument, the court maintained that a non-prohibited exportation from any nation having favored nation treaties of an untaxed material of the same kind and character answers all the requirements and should stand upon the same footing as the goods so imported from Canada. The court further stated that it would not do to say that wood pulp and wood are more accessible from Canada than from other countries; that the treaties cited in the cases under consideration speak in no such language of distinction, recognizing no difference between nations in different quarters of the globe; that if any exception or reservation from the language of the treaty is to be made, it must be made by an authority which has power to abrogate the treaty in whole or in part, and it does not lie with the court or with an administration department to annex or affix conditions to a treaty which is, unless abrogated by a legislative enactment, the supreme law of the land.

Following the decision of the court, the Treasury endeavored to find some means to carry the matter to the United States Supreme Court, and the Attorney General was called upon for his opinion. After much deliberation he that the Court of Customs Appeals was the highest court in which such matters could be settled, although they did involve treaty rights. About three weeks ago Assistant Secretary Curtis issued a premature order stating that the refund of duties would be made, and orders wore issued immediately to customs officials to enter importations of pulp and paper valued up to 4 cents per pound free of duty

This order was recinded several days later by Secretary McAdoo. The latest order, however, is believed to be absolutely authentic, and it is thought that the Departmnet will take steps to clean up the matter for good.

CANADA WILL SHIP 1,000 TONS A DAY OF NEWS TO U. S. BY 1914

A correspondent of the Wall Street Journal sends that paper some interesting statistics on the Canadian newsprint industry. He says:

In 1912 newsprint output in Canada was increased about 300 tons daily. This year the output will be increased about 500 tons daily, giving Canada by the end of 1913 a daily output of approximately 1,500 tons of newsprint. Of this amount, about 1,000 tons will be shipped to the United States, which consumes a daily average of about 4,700 tons of newsprint. Consumption in the United States of all grades foots up about 10,000 tons daily. The total increase in production of newsprint in the United States in 1913, as compared with 1912, will be about 250,000 tons. An official of a leading Canadian pulp and paper concern says of the situation here and in the United States:

"Consumption of paper is growing to such an extent in the United States that Canada is becoming an ever-increasing factor in the situation. Newsprint enters the United States from Canada free, except that produced from Crown lands timber, so that 80 per cent. of Canadian paper enters the United States exempt from tariff tax, as that proportion is produced from privately owned lands.

"The International Paper Co., has large areas of wood lands in Canada, but, as they are all Crown lands, wood pulp made from that timber cannot be exported, and the International may be forced to build mills in Canada to get the use of those timber areas. It is naturally to be expected that they will want to make some use of their tracts. The trouble with the International Paper Co., as it appears to me, is its lack of sufficient wood lands in the United States. It has a capacity of 1,700 tons of newsprint daily, a good sales organization and good water powers. By scrapping its mills across the border, or perhaps putting them on special papers, and building mills in Canada, it could probably use its valuable water powers in more profitable ways. I understand the International has recently taken nineteen machines off newsprint in pursuance of such a policy.

Over-production Now.

"There is now a slight over-production of newsprint in Canada and the United States, probably amounting to 50 tons daily. That situation helps to knock out the old, poorly arranged and ill-equipped mills.

"Those mills across the border which are weighed down with a budren of over capitalization have some hardships ahead of them in my estimation. The tariff must be reduced or prices will advance considerably. Demand will probably overtake supply this fall, resulting in some advance in prices any way.

"About 70 per cent. of Canadian made newsprint is exported, our shipments abroad including no other grade of paper. We also export annuaally about 20 per cent. of our sulphite, which is pulp reduced by chemical treatment, and some 250,000 or 300,000 tons of ground wood.

"There is some irritation among Canadain pulp makers over the proposed provision of the Underwood tariff bill which admits groundwood pulp free but places a tax of $2 a ton on sulphite. A Berlin, N.H., paper concern is using 700 cords of wood a day, turning outs ome 500 tons of paper daily. This wood is brought from Canada and there is a feeling here that they have instigated the tax on sulphite."

QUEBEC'S PLANTING OPERATIONS

Waste Lands Near Lachute Being Reforested.

About forty years ago near Lachute, Que., there were fields devoted to the growing of barley which was transported to Montreal to be used in the breweries there. Prices were good and the farmers raised the same crop for approximately fifteen years in succession. Then a plague of grasshoppers removed a large part of the virile green growth, with the result that the soil. relieved of the great part of its humus and other binding elements, began to drift in a south-easterly direction under the impelling force of the prevailing wind. At the present time these fields resemble a rolling sea. The sand has been hollowed out in the places in which there are no trees or grasses and piled up long distances away to a height of from 10 to 25 feet.

The work of reclaiming this land has undertaken by the Quebec Government under Mr. G. C. Piche, M.F., Director of the Forestry School and Chief Forestry Engineer of the Quebec Department of Lands and Forests.

Of the 17,000 two-year-old white pine which were planted a year ago 13,000 are at present living, and of the 18,000 two year-old white spruce 5,000 have come through the year successfully. The experimental plantation of 3,000 white ash and 800 elms was a little more successful, as these, although slightly frozen, have come through the winter practically without loss.

This year the company of foresters who are working on the sand waste have replaced 4,000 pine and 5,000 spruce which had failed with new seedlings of Scotch pine (Pinus sylvestris. It has been found that it is practically useless to plant little trees alone on the hills, as the sand blows over them and erodes around them to such an extent that they cannot live. The remedy for this is to plant beach grass, which affords efficient shelter to the young trees to allow their first year's growth after plantation to go ahead without setback.

Frost injured the pines to a certain extent, but the greatest damage came through the severe drought which prevailed during the first half of May. At that time the plants had part of their rootlets enclosed in a frozen soil. The plants were transpiring very much whilst the roots would not supply enough moisture to counterbalance the drying action.

This drought had the effect of "burning" some of the foliage in the western extremity of the plantation. It is noticeable, however, that the white pines, although slight withered at the tips of the leaves are still vigorous in the leaf axils and in the terminal buds. The main loss to the spruce seedlings, it is thought by the planters, was due to the fact that they were too young and too tender to endure the hard conditions in which they were placed. Also, Mr. Piche, the Chief Forester, thinks that enough care was not taken by some of the planters, who exposed to the air the fine rootlets which should have been kept under good cover or in a bucket of water.

Last year a total area of twenty-one acres was planted. This year with twelve students working at the rate of about eight to ten thousand seedlings a day twenty-five to thirty acres were planted. Mr. Laliberte, under whom the work was done, estimates that the cost was aproximately $15 per acre, but as this was incurred in a short time and the overhead expenses were great, it is far in excess of what can be ordinarily accomplished. The cost, if the planting were undertaken on a large scale, should be only about five or six dollars an acre. It is well within the range of possibility that a large sand area of some thirty-six square miles near the present plantation may be planted up in the course of the next few years by the Government. It is a distinct menace to the surrounding country, and the experiments already carried out, including those of farmers between the bad lands and the town of Lachute, show that it is quite possible to prevent altogether the drifting of the sand.

The Quebec Government is anxious to carry on this work for many reasons, chief of which, in addition to that of subduing the drifts, is that it provides an object lesson and a considerable amount of encouragement to farmers who plant up their own lands. In the Government nursery at Berthier, Que., there are millions of seedlings available for such enterprises, and Chief Forester Piche is anxious to place them in good hands. At the present time the arrangement between the farmers and the Government is that the Government buys the land at $1 an acre, plants it with trees and undertake to return it to the owner if he cares to buy at the end of eight of ten years for the cost of production. In no case is the purchase price in this second instance to be over $10 per acre.

THE FORESTS OF CANADA

Recent Additions to Dominion Forest Reserve.

The amended Dominion "Forest Reserves and Parks Act," which was assented to on June 6th, 1913, added over ten thousand five hundred square miles to the existing area of Dominion Forest Reserves, making a total of over thirty five thousand eight hundred square miles of reserved forest land in the Western Provinces under Dominion jurisdiction. Of this reserved area, three thousand, seven hundred and eighty two square miles are found in Alberta, one thousand eight hundred and seventy two square miles in Saskatchewan and one thousand one hundred and eight square miles in Manitoba. Over two thirds of the total area is fouud in Alberta, owing to the fact that practically all the eastern slope of the Rockies has been set aside as a forest reserve, not only to perpetuate the supply of timber, but to preserve and equalize the flow of the large prairie rivers that have their sources in this reserved area.

Mere figures are of little value except for purposes of comparison. In the latest report of the United States Chief Forester, the total of National Forests under reservation is given as two hundred and fifty seven thousand, eight hundred and fifty five square miles, an area over seven times as great as that of the Dominion Forest Reserves. And this, in spite of the fact that the area bearing merchantable timber in the United States, is considerably larger than that in Canada, making less pressing the need of reservation. Moreover the area fit only for bearing timber, technically known as the "absolute forest soil," is considerably greater in Canada than the United States, making justifiable a policy of reservation on an even more extensive scale than that followed in the United States.

These western reserves are created by the Dominion Government as provided in the Act "for the maintenance, protection and reproduction of the timber growing thereon, for the conservation of the minerals and the protection of the animals, birds, and fish therein, and for the maintenance of conditions favorable to a continuous water supply." To accomplish these ends the reserves must first be protected from fire, and under the direction of technical foresters and supervisors, fire-lines are being cut or ploughed, trails are being cut, telephone lines and lookout stations installed, "caches" of tools distributed in accessible places throughout the reserves, and efficient patrols established.

Nor is the timber so protected allowed to die of old age. The foresters determine at what diameter in each section the maximum production is attained and when the trees reach this size, they are granted free or for a nominal sum to homesteaders who apply to the forest officials for cutting permits. Care is taken not to allow over-cutting, for it is the forester's aim to crop the forest perpetually and at the same time increase its producing capacity by proper methods of management.

Thus, by this policy of forest reservation, instead of denuded hillsides, drifting sand and barren rocks, and muskegs, these areas will in time be covered with great tracts of forest owned by the people and supplying their wants, not only now but to all future time, when countries with less foresight will be the throes of a timber famine.

NORWAY'S PULP TRADE

In a report by British Consul Edward F. Grey on the trade of Norway, that gentleman points out that forest owners in that country had a very satisfactory year, the price of timber rising very high, while the importation of timber from Russia and Finland declined, owing to high shipping freights.

Speaking of the pulp markets, he states that at the end of 1912 there were nineteen Norwegian cellulose mills, with an annual capacity of 250,000 tons. The exports of cellulose, while showing a slight increase in 1912, have been decreasing since 1907. In that year those of dry chemical aggregated 39,855 tons, in 1908 they declined to 36,751 tons, and in 1910 they dropped to 30,099 tons. In 1911 they rose to 31,684 tons, and in 1912 they further increased to 33,472 tons, showing, even after this increase, a net decrease of over 6,000 tons.

The Norwegian exports of moist chemical pulp have shown the same tendency, decreasing steadily from 209,808 tons in 1907, to 149,515 tons in 1911, and recovering in 1912 to 168,179 tons.

It is evident that Norway cannot be depended on to increase the supply of pulp available for the foreign demand.

Referring to more recent transactions, Mr. Grey says:

"After a long period of depression, the makers of chemical pulp have experienced a good year, a substantial advance in prices having been established. Prices keep firm at abou £8 15s. f. o. b. for easy bleaching and from £8 to £8 5s. f. o. b. for strong quality. There are no stocks to speak of available. As regards mechanical pulp, the prices which during the first few months of the year were quoted at from £2 2s. 6d. to £2 3s. 6d. per ton moist f. o. b. gave way during the summer and autumn to the extent of 3s. to 4s. per ton, about £2 per ton moist f.o.b. being the current price at the end of the year. As many makers, taking advantage of the strong position of the market during the autumn and winter months 1911-12, had sold at least a good portion of their 1912 production at the high prices then ruling, the year must be characterized as a good one for this branch of the pulp industry also."

LOWER COUGH-ROLLS

It has often been suggested that the lower couch-rolls should have indiarubber sheaths, the idea being that these sheaths conduce to longevity of the wire. Unfortunately, attempts to give practical application to the idea have resulted unfavourably. The indiarubber sheaths are expensive, and although they fulfill the claims made for them perfectly while they are new, they wear out very rapidly, and harden to boot. To secure the unquestionable and considerable advantages which are gained by their employment, they must be soft and smooth, and they soon lose both these characteristics. It is far better in cases where an elastic couching is desired, as, for example, in making blottings and certain kinds of printings, so as to get a full handle, to sheath the lower roll with a hard woven covering. These answer the purpose much better than felt coverings. It may fairly be said that the unsuitability of rubber sheaths for under couch-rolls is quite on a par with their undoubted advantages for lower press rolls.—Papier Zeitung.

THE AGE OF A TREE AND ITS SIGNIFICANCE

By G. E. BOTHWELL

"In our northern climate it takes, on the average, not less than one hundred years to make a twelve inch tree." So said Dr. Fernow at the Canadian Forestry Association in 1909, when Forestry was just beginning to take hold in Canada, and when almost nothing was known about the rate of growth of Canadian tree species.

A tree every year produces a new ring of wood, and all that is necessary in order to determine its age is to count the rings on the stump. Simple as this operation is, none of these records were taken until the technical Forester came on the scene, but now growth studies have been made in every province of the Dominion and Dr. Fernow's prediction, doubted though it was at that time, has since been verified by actual count.

The recent forest survey made by technical Foresters for the Government of Nova Scotia, an account of which is published by the Commission of Conservation, gives sufficient indication of growth conditions in the Maritime Provinces to discredit the idea that a merchantable tree was produced in that locality in thirty years. Quoting from this report—"It took a hundred and forty to a hundred and fifty years on the average to grow the trees now being lumbered." Again speaking of Red Spruce, the most prevalent species in Nova Scotia, the report states that "A twelve inch tree in eighty-five years is a fair average for second growth," and this too, in Nova Scotis, where the humid atmosphere presents conditions most favorable to tree growth.

There is as yet a paucity of data regarding growth conditions in Ontario and Quebec, but in this latter province where spruce is the predominating species, ring-counts made by the Union Bag and Paper Comapny on the Mattawin limit in the St. Maurice Valley in 1908, prove conclusively that in Quebec, at least, it takes one hundred years on the average to grow a twelve inch tree. The results obtained for black spruce on swampy land, its characteristic habitat, were as follows:—

Age.	Diameter on Stump
150 years	11½ inches
146 "	10 "
141 "	9 "
171 "	10 "

On the rocky Laurentian hills the home of the white spruce, the ring-count for this species gave the following results:—

No. of trees measured.	Age.	Diameter on Stump
13	11 years	12 inches
19	140 "	12 "

At Englehart, New Ontario, in 1908, the committee selected by the House of Representatives of the United States to makes investigations regarding the supply of pulpwood in this province, found that in one case, it took a nine inch spruce eighty years to grow, and in another case it took a ten inch spruce, one hundred and ten years to grow, both trees being average specimens of the tree-growth characteristic of the Clay Belyt. In the fine red and white pine forests on the flat shores of Lake Nipissing, the students of the Faculty of Forestry, Toronto, after making a stem-analysis of over one hundred trees, and averaging the results, arrived at the conclusion that it took one hundred and forty years to produce a twelve inch pine. If this is true for loamy sand ,now old are the trees now being lumbered on the barren rocks of New Ontario, and when again will be seen there, another such forest?

The Forestry Branch at Ottawa has collected considerable data regarding forest conditions in the Western provinces, which data, being amassed by technical Foresters in the Government employ, may be considered absolutely reliable. Along the proposed route of the Hudson Bay Railroad, where black spruce predominates, this species was found to take one hundred years to reach a diameter of from four to five inches, and being past their prime, such trees will never grow noticeably larger. On the Riding Mountain Reserve in southern Manitoba where a mixed growth is more prevalent, in one hundred years the average white spruce attained a diameter of thirteen and one half inches, but in the same time black spruce only reached a diameter of seven inches, aspen (poplar) a diameter of ten inches and jack pine, a dlameter of twelve and one half inches. In this latter case, during the last thirty years the diameter increase was only one and half inches, for jack pine, while growing rapidly in early life, grows very slowly after attaining an age of sixty to seventy years, very seldom exceeding a foot in diameter except where conditions are most favorable for its growth.

Leaving the prairies and coming to the foothills of the Rockies, investigations made by Mr. Dwight now Assistant Director of Forestry, show that Lodgepole Pine, the characteristic tree of the East Slope, takes one hundred years to make a diameter growth of eleven inches and Englemann Spruce, succeeds Lodgepole Pine in importance, in the same time only attains a diameter of nine and one half inches.

Coming to British Columbia, the land of giants—speaking of trees—where the mild climate, the humid atmosphere and the fertile soil combine to idealize growth conditions, we expect prodigies of growth, and are not disappointed. But although the hugh firs and giant cedars may not equal the sequoius of California in antiquity, they are, nevertheless, much less youthful, than is generally supposed. The Forester following along the broad swath cut by the lumberjacks, applies his rule to the stumps, counts the rings and finds that it takes two hundred years to produce a tree three feet in diameter. Figuring on this basis, and remembering that the older a tree becomes, the slower it grows, the trees ten to twelve feet in diameter which are the wonder of tourists, must have taken almost one thousand years to mature. Once such trees are cut they will never be replaced, for the lumbering of the future will be done by Foresters, and trees will be cut as soon as their volume production begins to fall off, which will mean that the age of a tree will then seldom exceed the age of a man.

From the Atlantic to the Pacific, then, the average tree in Canadian forests takes one hundred years ot attain a diameter of twelve inches. It is quite possible that some trees on good soils may attain this diameter in half the time or that in the country to the south, the same species may have a more rapid rate of growth. But in Canada, on the poor soils to which Canadian forests are now chiefffly confined, the average tree in such forests takes a whole century to attain merchantable dimensions. This fact is most significant and the moral pointed is obvious. It has been calculated by competent authorities that at the present rate of destruction by axe and qre, the supply of timber in Canada will be exhausted in less than fifty years. If, then, a timber famine is to be avoided, there must be better regulation of lumbering and better protection from fire, and this is the Forestry which must at present be practised, not by a few technical Foresters only, but also by the lumberman and by every conscientious citizen in Canada.

ELIMINATING INK FROM OLD PAPER

Translated from "Moniteur de la Papeterie francaise," by C. E. BANDOLIN

An immense number of patents have been granted for eliminating ink and especially printing ink from old paper. None of the methods, however, can be regarded as completely satisfactory or economical.

The treatment of papers printed with soluble inks and colors do not offer any difficulty, as those substances soluble in water or in some energetic chemical compound, acid or alkaline, are easily washed out. It is frequently enough to soak the papers to be made use of again in water in order to eliminate the ink and obtain a pulp of satisfactory whiteness.

Papers containing common printing ink are, however, not so easily treated, which is not surprising, if the composition and consistence of the ink is taken in consideration. It can be said, that most inks consist of a color combined with oil or varnish as a carrier. The alkali promptly saponifies the oily matters and the pigment, discolored by the same process, becomes easily soluble.

The treatment of newspapers, however, where the ink is of a very different composition is much more difficult than the treatment of waste papers of the kind first mentioned. The pigment now usually consists of lampblack mixed with rosin varnish, prepared by distilling rosin as well as heavy mineral oils of a common and cheap grade and used as carrier. Boiled vegetable oils, such as better grades of linseed oil are only used for inks of superior quality.

The numerous patents referring to the treatment of old newspapers upon the use of an alkali, either carbonate of sodium or caustic soda, or other modifications of these alkalis with less causticity and usually in form of soaps.

The printing ink is nearly completely eliminated from the surface of the paper when the varnish from vegetable oils has been washed out which is easily saponified by the alkali, which dissolves the oily constituents of the ink and changes them into a soluble soap. A more or less complete elimination of the ink would be possible, if the paper could be treated only on its surface and the dissolved substances washed off.

But the coloring matters in the ink are not destroyed, they are only set free from their combination with the varnish and all experiments to get rid of them depend completely upon their elimination by mechanical means. In other words, all proposed methods depend upon dissolving the oily carrier and upon a following disintegrating of the papers in order to wash out the fine carbon particles by mechanical means.

This can easily be done by means of a common washing cylinder, turning in a beator, which contains this old paper after they have been reduced to pulp, or also by letting the pulp pass over very fine screens.

This system of washing, however, has two inconveniences: the first is a considerable loss in weight by the elimination of a high percentage of china clay and fibrous material, and the second consists in the impossibility of eliminating all the carbon. Consequently the pulp obtained is greyish and the cost of treatment is high in comparison with the quality and color of the pulp obtained.

It is hardly necessary to remark, that the utilisation of mineral oils which are difficult to saponify with an alkali, reduces still further the chance of success, as the fatty substances of the ink are not made soluble by the addition of alkali and the disintegrating of the paper into pulp and washing does not much improve the color.

Consequently no practical method to use old newspapers for the preparing of a pulp, suitable to be used again, has as yet been found.

A recent patent recommends the use of borax, the inventor claims, that this does not dissolve the fibres of mechanical pulp as do the alkalis, which leave a yellowish tinge. According to this method old newspapers are treated with a solution of 1 kilo of borax in 500 litres of water. The oil carrier is usually dissolved in this way, but the elimination of the pigment remains to be effected.

A NEW PROCESS OF ESTIMATING THE CELLULOSE IN LIGNIGIED FIBRES AND RESEARCHES REGARDING THE CELLULOSE OBTAINED FROM JUTE AND WOOD BY THE SAID PROCESS.

Mr. Adolf Klingstedt, Dipl. Eng. of Helsingfors, has chosen the above subject for his doctorial thesis, from which the following is taken. Cellulose soccur in wood in intimate connection with lignine. The latter can neither be separated from the cellulose by means of solvents nor by means of rather extended hydrolysis. Besides the so-called lignocellulose there are various intermediate products between cellulose and lignine; this is the reason why the cellulose obtained from lignified fibres is not homogenous. To ascertain the amount of cellulose in lignified fibres the noncellulose parts are either hydrolised or oxydised. According to Renker the greatest yield in cellulose is obtained by treating with chlorine gas and subsequently lixiviating with a two per cent. solution of sulphite of soda. By this method a very pure product free of oxycellulose is obtained. It is, however, a very roundabout way and its application is more or less confined to laboratory work. The above thesis principally deals with examinations as to whether chromic acid or nitrous acid is most suitable for ascertaining the amount of cellulose.

The following process for obtaining cellulose out of lignified materials is described in the German patent No. 204,460. If rarified nitrous gases are passed over pulverised and moistened wood for two to three hours, the gases are briskly absorbed and the non-cellulose parts of the wood oxydised. In order to complete the reaction the gases are left to act upon the wood for a few hours. The material is subsequently placed in a two per cent. solution of soda and boiled in open vats. After long continued boiling the material breaks up into a loose fibre pulp and the lye is coloured dark brown. When the lixiviation process is completed the lye is run off and the material washed and bleached in a solution of chloride of lime. The fibres obtained by this process are said to be strong and easily bleached.

Several trials were made in the laboratory to lixiviate pulverised pine, but after the wood wool which had been moistened with 30% of water, had been subjected to a lengthy treatment with nitrous gases and five hours of boiling in a 2 per cent. soda lye, the result, after bleaching, was a dark brown coloured product which gave a lignine reaction with chlorine and sulphide of soda.

Trials were also made to isolate the cellulose in lignified fibres by means of chromic acid. The yield in pure cellulose was as great, if not greater, than the yield obtained by other methods. The amount of oxycellulose formed is so small that it may be neglected. The method is very simple and can be carried out in a relatively short space of time, making it very suitable for testing work in technical plants.

The chlorine method is to be preferred for isolating cellulose in laboratory tests, as the secondary reactions (oxydation and hydrolysis) only take place in the smallest degree by this method.

The chromic acid method of obtaining cellulose out of wood is not very suitable for technical purposes as the sisolated product, even after being treated for a length of time with 3 per cent. nitric acid, still retains the greenish colouring caused by protoxyde of chromium.

Jute which has been oxydised with a 2 per cent. solution of of potassium bichromate, on being treated with a 1 per cent. caustic soda lye was coloured intensive red. This process ,however, is not suitable for general use in proving the presence of lignine, as the colour only appears after being subjected to the oxydation medium for number of hours.

On isolated jute cellulose being dissolved in sulphuric acid (50 vol. per cent.) and the solution being diluted and subjected to distillation with steam, the greater part of the volatile acid occur at the commencement of the distillation.

According to Knoevenagel, if the cellulose triacetate is caused to swell by the action of alcohol and water it is possible to quantitatively saponify and estimate it by means of a 50 per cent. solution of ordinary potash lye at room temperature.

In acetylising isolated cellulose obtained from lignified fibre with acetic anhydride and sulphuric acid hydrolysis takes place. During this process one part is changed into soluble products, whilst the other part takes up 3n+2 acetile groups for n groups $C_6H_{10}O_5$.

In saponifying the triacetate made from jute and wood cellulose with a 50 per cent solution of ordinary potash lye at room temperature, only one part of the cellulose is regenerated, whilst the cotton cellulose out of the acetate can be almost fully recovered.

In the production of viscose from isolated jute cellulose a considerable hydrolysis also occurs in the soluble products.

EDDY'S NEW GROUND WOOD MILL.

(Special to Pulp and Paper Magazine).

Ottawa, Ont., July 26.

What is claimed to be one of the largest and most up-to-date mechanical pulp mills in the world will be completed in two months for the E. B. Eddy Company of Hull and will place that company, in addition to the improvements to its power plant, which are also under way, in possession of splendid facilities for the manufacture of its products.

The new mill, which is situated on the westerly end of the company's property, is a concrete structure and is remarkable in many ways for the excellence of its design especially from the point of view of lighting facilities. Light is admitted from all sides by day and the same standard of artificial illumination will be maintained at night. The machinery will be installed in tiers so as to afford the greatest possible convenience and speed in handling. Adjoining the mill is a large motor room 170 by 50 feet in size where are situated six high power motors from which power will be supplied the smaller motors in the pulp mill. There are twenty four of these latter from 10 to 100 horse power built specially for the E. B. Eddy Company according to specifications prepared by Prof. L. P. Herdt, professor of electricity at McGill University, and manufactured by the Canadian General Electric Company. Each machine will thus have its own motor.

When the improvements to the power plant have been completed this fall the Eddy Company will have gone a long way toward attaining an ideal toward which it has set its face, the systematizing of all its operations on the most economic basis possible.

J. R. Booth, the lumber king and paper manufacturer of Ottawa, spent last week in Montreal on business. His retiring and modest style of earlier date, still characterises "the old man."

OTTAWA NOTES

(Special to Pulp and Paper Magazine.

Ottawa, July 28.

A flooring and roofing manufacturing plant will be established in Ottawa by Mr. L. Maclean, of Montreal, proprietor of a plant of the same description in his home city. The old Warnock mill on Wellington street will, it is announced, be fitted up for the establishment, which will be supplementary to that in Montreal.

The Quebec Provincial Government will be asked to take over the Gatineau toll bridge at Gatineau Point which is in dispute between the Gatineau Boom Company, the concern which has charge of river driving work on the Gatineau, and the City of Hull. The Boom Company finds it necessary to its operations to open the bridge but as there is no one in charge of it and it is not being kept in repair they fear that accidents might occur. They threaten to hold the city responsible for such eventuality. It appears that the original lessee, one J. Cousineau, has refused to open the bridge following the action of the Hull Superior Court confirming the cancellation of his lease and his right to collect tolls. As a result the Provincial Government will be asked to take steps.

Commencing the 15th of next month, the increased rates on pulpwood from Ontario, Quebec and New Brunswick to American points will go into effect. These are the rates which it is claimed will raise the cost of paper 56 cents per ton to the American manufacturer. Taken in conjunction with the tariff changes which are also claimed by the United States paper trade to bode evil to the industry on the other side of the border, it will be interesting to see whether they will have that effect on trade which has been claimed for them.

The water in the Ottawa River is at an exceptionally low point at the present time. At the foot of the Rideau Canal locks last week it measured only 8 feet, 9 inches, whereas on the same date last year it had reached a height of 11 feet, 10 inches. The dryness of the summer is, of course, the cause and is causing lumbermen some uneasiness more from its effect on the power supply than for any other reason.

Pulp and paper manufacturers have greeted with much interest the circular which has been distributed through Canada and Great Britain by the Dominion Trades and Labor Congress to the effect that Canada cannot accommodate any more British immigrants of the laboring class as the local market is already too well supplied. The circular calls upon British unions to spread the warning to their members. When seen in regard to this manifesto as affecting the lumber and paper trades a number of local manufacturers confirmed the statement that labor was plentiful, C. Jackson Booth and others stating that there had been no difficulty in obtaining men.

That a very large percentage of Ontario west of Sudbury and south of the Height of Land is absolutely non-agricultural and is valuable only for the production of timber, is the result of a brief preliminary reconnaissance made last summer for the Commission of Conservation by Mr. J. H. White of the Faculty of Forestry at Toronto. This examination shows that a very large percentage of Ontario in the region indicated will unquestionably prove a source of large revenue to the Province in the future. Fires, however, have done enormous damage, especially during the period of railway construction. However, a great deal of valuable young growth has come in and requires protection in order that it may reach maturity. Some merchantable timber remains in the area back from the railways which has not yet been included in forest reserves or in timber limits. Ultimately the whole territory south of the Clay Belt lying between the Temigami and Nipigon reserves should be included in permanent forest reservces and protected and administere under forestry principles, Mr. White considers.

J. Melbourne Shortcliffe, M.A., of Yale university, was in the city last week obtaining information for a thesis which he is preparing for Yale on the administration of forest lands in Canada. Mr. Shortcliffe interviewd officials of the Department of the Interior, the Conservation Commission and other. He will conduct a three months investigation preliminary to embodying his material in his thesis.

CHINESE PAPERS

The papers used in China may be divided two groups; those that contain only the raw materials of the Far East, and which we can regard as indigenous, or almost so, and those made from the same materials that are used in Europe,

The first-named are naturally the most interesting. Among then we find bamboo, broussonetia (B. papyrifera), edgeworthia, and rice. Ramie is used little, if at all. Bamboo prevails, and in all the samples containing it, it had been employed without admixture. It is made into writing papers, very light, and as a rule, somewhat creamy, but nevertheless difficult of identification at the first glance, in spite of the uniformity of their composition. Among the most remarkable may be mentioned paper for account books, fancy note and commercial papers, and also a blotting paper which does its work well although very thin and silky, and almost glossy.

With the broussonetia or paper-mulberry, either alone or mixed, curious crimped papers are manufactured, and also gauzes resembling fabrics, and serving almost the same purpose in fans, handkerchiefs and teatable cloths. From broussonetia are also made thicker papers of astonishing indestructibility which are used as covers for school copybooks, pamphlets, etc., and also for wrapping expensive goods like silks.

Edgeworthia, or "Misumata japonica," enters into the composition of very beautiful papers resembling mother-o-pearl. Used pure, it constitutes the real "imperial paper" of Japan. It yields splendid strong and thick white papers.

Rice paper is rare, as the straw is not strong enough for very thin papers, the sort that the Chinese prefer. Muslin papers are, however, made from a mixed pulp of rice-straw, broussonetia and edgeworthia.

There is a so-called rice paper, which is not paper, and is not made from rice-straw, but consists of fine slices of the pith of a plant belonging to the genus "Aralia." It is used for painting miniatures or other small pictures on, and was once imported into France for that purpose.

Raw materials imported from Europe are used mainly for printings, but at the same time they enter into the composition of all sorts of Chinese papers, from the most delicate to the coarsest wrappings.

Consequently, if we study papers originating in the Middle Kingdom in the hope of finding rare fibres, we may meet with many disappointments. Pine—very much pine,—alfa, ordinary straw—these are the varieties that may be found in the precious samples so long coveted.

The large newspapers, the postcards, and the letter papers are of European origin, and imported through Canton and Shanghai. They all contain more or less mechanical pulp and esparto. Mills on the European plan are springing up rapidly in China, especially in the province of Hankow. The earliest were established by foreigners, chiefly by the English, but they are passing more and more into the hands of the natives. It is possible that in the near future they may render the importation of European papers unnecessary.

Thus the Chinese, our teachers, imitate us now. It is a long time since the two famous Chinese prisoners of war at Samarkand revealed to us the secret of the manufacture of paper, and now we ourselves have found out something very important—that is, the industry of cheap paper-making.

It is this industry, low-priced paper, which has given birth to those two Siamese sisters, those inseparably joined twins, that we know as the Press and advertising. And we know the tremednous success, not always of the highest standard unfortunately, that has attended them. It is this monster, well worthy of the infernal imagination of the "western devils," which has dragged from the lethargy of sleep China, that old China which we believed to be unchangeably set in its ancient methods.

Probably some day, when the world knows little but wood paper, and when rags are reserved for banknotes only, there will only be a few Chinese paper mills in remote districts turning out artistic letter papers, ornamented with flowery designs and polite phrases, such as are now made all over the Flowery Land.—La Cellulose.

ALASKA TIMBER FOR PULP WOOD.

Bids have just been received by the Forest Service of the U. S. for 300,000 feet of timber, which has been advertised for sale on the Tongass National Forest, in Alaska, and an additional 300,000,000 feet from the same forest has been applied for. A large part of this timber is Sitka spruce, which will be made into pulp paper, not only for the Pacific Coast and the Orient, but for the general pulp market. The latest estimates available show that there is a stand of approximately 70,000,000,000 feet on the Tongass National Forest and approximately 28,000,000,000 feet on the Chugach National Forest, in Alaska. The Alaskan forests in fact contain approximately one-sixth of the total stand of timber on the national forests. The annual cut on the Tongass Forest has increased gradually from zero at its creation in 1902, until it amounted to approximately 43,000,000 feet in the year 1912. This entire amount has been cut for local fees, largely for boxes to contain canned salmon. The latest large sale is remarkable in that it indicates a beginning of the utilization of Alaskan timber in the general markets.

Barber-Ellis, Ltd., have issued a most attractive booklet descriptive of their offices throughout Canada and of the works at Brantford. The history of this firm has been remarkably closely associated with the paper industry of this country.

About thirty-seven years ago, James Barber, Jnr., of Georgetown and John F. Ellis, of Toronto, entered into partnership under the name of Barber & Ellis, Manufacturers of Envelopes and Dealers in Paper. This pleasant relationship was terminated, at his own request, by the retirement of Mr. Barber. A joint stock company was then formed and John R. Barber, his brother, took over his interest and was elected President of the Company, and John F. Ellis, Vice-President and Managing Director. There has been no change in the officers of the Company from that date to the present time.

In those days the office and factory was situated at Nos. 43-49 Bay Street. In the fire of 1904, nine years ago, the stock and machinery, in fact everything connected with the business, was completely destroyed. It was then decided to move the manufacturing branch to Brantford, retaining the warehouse and head offices in Toronto.

Since that date the business has grown to such proportions that it became evident the factory equipment would have to be very largely increased, in fact it was found necessary to construct a new building, and in addition to that open up warehouses in Winnipeg and Vancouver.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

The Keyes Fibre Company which makes millions of pulp pie plates every year, is meeting with continued prosperity and growth, as shown by the fact that the company is building an additional boiler house at its present plant at Waterville, Me. The mill is one of the few pulp products mills in the United States that are located in two towns—one half being in Waterville, and the other half in Fairfield.

At 7 o'clock yesterday morning, a new 134 inch paper machine was in operation at the Hollingsworth Whitney mills at Winslow, Me. The machine has just been set in place by the Portland Company, and its addition will require about 100 more men, and will increase the capacity of the mill almost one third. The mill previously had four machines, two 160 inch, and two 134 inch. Another improvement just begun is the installation of two more digesters, 15 x 45 feet at the lower end of the mill near the offices. They are to be made of steel and probably will be ready for use late in the fall. The contract for the building of the digesters has not yet been awarded, as the preliminary work is being done by the company. The erection of the digesters comes as a sequence to the paper machine, for the old digesters cannot supply sufficient pulp for all five machines. New boilers are needed, and work has just been started by the Durran Co., of Fitchburg, Mass., on four new 500 horse power boilers in the boiler rooms.

Regulation by Executive order of the Diversion of water at Niagara Falls is being considered by President Wilson at Washington, D.C. Since the lapse of the Burton act, under which the War Department controlled water diversion, the Attorney General has informed Secretary Garrison that the department has no jurisdiction over the falls. Secretary Garrison contended that the treaty between the United States and Canada gave the United States authority to prescribe the quantity of water to be diverted, but the Attorney General replied that this was a problem for the President. In the meantime army engineers report that the power companies have made no effort to increase the amount of water taken from the river.

One of the important changes in the Chicago paper circles is that of Joseph C. Reynolds from the J. W. Butler Paper company to the West Virginia Pulp and Paper Company's Chicago headquarters. Mr. Reynolds became first associated with the J. W. Butler Paper Company some years since as a traveling salesman. Previously he was a newspaper man. He soon attracted the attention of the management, and in March, 1910, he was brought to Chicago to fill an important inside sales position caused by a vacancy. He was later put in charge of the purchasing department and recently given a wider range in the sales end of the business.

The Champion Coated Paper Company, of Hamilton, Ohio, has received the contract to furnish the Internal Revenue Department of the Government with paper for stamps and licenses. The contract amounts to about $100,000. Fifty carloads of the paper will be furnished from time to time during the year.

Both the No. 1 and No. 2 Whiting paper mills of Holyoke, Mass., were closed down last week to allow time for extensive repairs to be made. The Ranger construction company had charge of the work.

Notice has been filed at Columbus, Ohio, by the Hinde & Dauch Paper Co. of Sandusky, of an increase in its capital from $300,000 to $2,000,000.

The Kalamazoo Fibre Package Company will be moved to Lawton, Mich., in the near future and consolidated with the Lawton Basket Company. The new capital stock of the combined concern is $50,000. The Kalamazoo Fibre Package Company was organized about a year ago to make berry boxes out of paper. The plan proved a success, but the company desiring to be located right in the heart of the fruit district has decided that better results could be obtained by such action. Probably later the plant will be enlarged and the output increased.

The Union Bag and Paper Company has issued a notice at Hudson Falls, N.Y., to the effect that until further notice the plant will be operated only five days a week. The new plan became effective several weeks ago. The mills effected will be the paper mills at Bakers Falls, mill No. 5 River Street, and the Fenimore mill at Fenimore. The bag mill, however, will for the present at least, continue operating six days per week.

George C. Sherman, treasurer and general manager of the St. Regis Paper Company with Mrs. Sherman and a party of guests, left Watertown, N.Y., the middle of last month for a month's cruise in his yacht Wana down the Gulf of St. Lawrence. At Quebec the ladies will leave the yacht and a party of men from Boston and New York will join. In the Gulf the ladies will again be picked up. Some time will then be spent cruising about the Bras D'Or Lake. The ladies after leaving the yacht will go to Brentonwoods in New Hampshire where they will be met by Miss Catherine Winfireld Fox and Mr. and Mrs. George C. Stebbins. After spending some time in the woods the entire party will join the cruise at Nova Scotia. Mr. Erskine ,sales manager for J. R. Booth and Mr. Arthur C. Hastings of New York were among the party.

Much interest has been manifested in the Miami Valley over the merger of the Fort Wayne Corrugated Paper Mills, the Blackford Paper mills and the Eaton Paper Mills Company under the corporated name of the Wayne Corrugated Paper Company. The capital stock is $1,000,000. The men named as in corporators have been deeply interested in the several projects, and believe that by a combination of interests much will be accomplished in reducing the cost of production and in extending the sales of various concerns. The directors are Chas. McCulloch, S.B. Fleming, Henry C. Paul, Stephen D. Bond, Patrick H. Griffin, W. A. Fleming and Chas. H. Worden. These gentlemen were also the incorporators. The purpose of the company, according to the incorporation papers, is to manufacture and sell paper boxes.

HINTS ON THE THEORY OF THE BEATER ENGINE

In theoretical considerations, which have hitherto been made on the operation of the beater engine, one extremely important point has not been given sufficient attention—namely, the density of the pulp and its relation to the working of the beater. To obtain a proper idea on the processes in beating, the disintegration and the transport of the pulp by the roll must be considered separately, always with a view to the influence of the density of the pulp.

If the beater roll stands still, the contents of the trough will remain at rest. When the beater trough contains water only, the level of the latter will be of the same height everywhere; if, however, the trough contains pulp, the surface of the latter will, even after the roll has been stopped, be more or less inclined, and this inclination will be the greater, the thicker the pulp—viz., the greater the density. The density of the pulp (sp) will thus have an influence on the level of the pulp already while the machine is staning still. When the pulp is in motion it will undergo a friction against the walls of the trough, the wetted surface of which we shall indicate by the letter (u), and the length of which by the letter (l). This friction will differ according to the smaller or larger cross section (F) of the pulp.

If we now attempt to move the pulp, for instance, by means of a paddle, it will rise higher at a rapid advance than at a slow advance: in other words, the resistances against the motion in the beater are in a certain relation to the velocity of the pulp (v). For overcoming these resistances there must be a drop (hw) in the level of the pulp circulation in the beater, and this drop depends on all the above-mentioned factors, and may be expressed by the following formula, which expresses all that has been said above:

him=f. (sp x u x l x F x v).

This value (hw) does not always correspond to the difference between the levels of the pulp in front and behind the roll, as the section of the passages through which the pulp has to flow is not everywhere the same. If, in particular, it be remembered that the bottom of the trough rises in front of the roll, but that there must always exist a drop when the pulp flows towards the roll, the pulp section in front of the roll must decrease more and more, and the pulp must flow faster and faster. It is obvious that the drop will be different, when the density of the pulp is a different one, so that a beater, which works excellently at a given density of the pulp, entirely fails under otherwise equal conditions with a different pulp density. Experiments which went as far as a pulp density of 5 per cent. showed that the factors mentioned have a numerical influence, and that it is possible to find by calculation the best suited shapes of the troughs, which have already been suggested by some beater manufacturers by instinct, so to speak.

In considering the roll, it must not be forgotten that it must deliver on the one side as much pulp as it takes up on the other, but that this quantity of pulp must again be exactly equal to that quantity which will flow within the time unit through any sectional area of the beater trough. There exists thus an inseparable relation between the circulation of the pulp on the trough and the feed of the pulp by the roll. It is obvious that the density of the pulp will, in this regard, be of the greatest importance, if, for instance, the pulp is assumed once very thin, and again very thick. In the latter instance the inertia of the pulp may be so great that far too little pulp enters into the cells of the roll for a noticeable circulation to be caused.

It is therefore possible to recognise, without the aid of mathematics, that there exists a given circumferential velocity of the roll for every beater and for every pulp density, at which velocity the best circulation of the pulp will be obtained. Also the shape of the backfall and its distance from the roll must depend on the density of the pulp, as on it again depends the quantity of pulp which is delivered by the roll. Is it thus not obvious that it is impossible to obtain a reliable calculation of the processes of motion in the beater without considering the density of the pulp?

Disintegration on the beater we may assume to be the result if a kind of friction between the roll and the bed-plate, and of the fibres being squeezed between the blades of the bed-plate and of the roll. Only the fibres which are seized between these two sets of blades are worked, squeezed, disintegrated. In this treatment thus only the specific pressure between the blades, comes into question. With a thicker pulp, under otherwise equal conditions, more fibres will be simultaneously seized as with a thinner pulp, and thereby the degree of the treatment will be considerably influenced—in other words, the pressure between the roll and the bed-plate will, with a thicker pulp, be distributed to more, with a thinner pulp to fewer, fibres, and thereby the quality of the finished stuff is determined. We thus see that not only the circulation of the pulp, but also the disintegration greatly depends on the density of the pulp.—Papier Zeitung.

TOWN OF FORT FRANCES REFUSES ONTARIO AND MINNESOTA POWER CO. FURTHER RIGHTS.

(Special to Pulp and Paper Magazine.)

Fort Frances, Ont, July 21.

The Ont. & Minn. Power Company request for the constructing of a dyke along the river front with a railway on top of it and the booming right along the same front was not long under discussion at the town council last week. It was finally decided, on motion to reject the plans as presented in every detail and a message was ordered to be sent to the government at Toronto asking them to send at once an engineer to look into and report on the immediate placing of a temporary dyke to protect the river bank and prevent more land falling into the river. The feeling of the council is that the water should not be allowed to go beyond the 497 bench mark and that a permanent dyke to be approved of by the government engineers be constructed at once and as far along the shore as will protect the town from high water. In regard to the request for booming rights, the company have now as far as Portage avenue and as other industries and the citizens need the balance of the water front it is proposed to keep it, and not give away what the town will certainly need very badly as the town grows.

There are private parties who hold leases under license of occupation from the government for carrying on their business and these must be protected. It was felt by the council that any excess storage wanted by the company could easily be obtained up the lake. It was conceded that the Power company should receive every assistance but that in giving this the town should not prejudice present and future interests.

NEW YORK WORLD INTERESTED IN BID PURCHASE OF LIMITS.

The Degrasse Paper Company, in conjunction with the New York World, have purchased from Mr. D. H. Pennington, of Quebec, his pulpwood limits at Murray Bay, comprising 52,000 acres. The price paid was $400,000. Mr. Pennington has taken out about 50,000 cords of wood off the limits annually for the purchasers. These limits formerly belonged to the Bonners, of New York, an old Quebec family.

BRITISH TRADE NEWS

(Special to the Pulp and Paper Magazine)

London, July 20, 1913.

This is a time for holiday-making—a period that the busy mill man enjoys here to go to

"A land of rainbow spanning glens whose walls,
Rock-built, are hung with many-coloured mists;
Of far-stretched meres whose slat flood never rests—
Of tuneful caves and playful waterfalls
Of mountains varying momently their crests."

It sounds strange, particularly when a well-known English paper man in New York the other day said to a meeting of friends: "You hustle up things in America and Canada, but in London we have not time to hustle." Be as it may, millmen are only snapping a respite that lasts from a couple of days to a week, and things look as if the Canadian millmen were also affected with the same enjoyable microbe, judging by the numbers that have recently visited London and other parts of England. But after all, is it not business and pleasure combined with, perhaps, a well-earned rest sandwitched in between? It is so in England, and oft is also a fact that the English and Scotch paper mills men are good "noses" for new inventions in the course of their travels. The same may be said of the Canadian when in London and other large cities. And, so, as the pendulum of time swings to the ticks of new business, competition, strikes, and revised tariffs, we find the Paper men of the great Dominion, either at home or in the Capital City of the British Empire, stretching forth the hand of good fellowship to the English or Scotch paper men, paying his highest respects, and thus consolidating a friendship and business relationship worthy of the industry we have so close to our hearts. Therefore, a holiday may be reckoned an asset—and a valuable one at times for profit-making.

While on the question of social intercourse, let us hope that the day is not far distant when there will be one great conference in London or elsewhere of the members of the American, Canadian and British Paper and Pulp Associations. The idea may be scouted in some quarters, but all things are not impossible. The three countries are trading very considerably with each other, and if manufacturers in other industries within the same sphere can meet on one common ground, surely there is no reason why manufacturers of Canada, America, and the United Kingdom, who are engaged in the great pulp and paper industries, cannot do the same. It would undoubtedly be the most instructive and most social conference that could possibly be held. The more intercourse there is between the Associations the better for all concerned and now that the Canadian pulp and paper men have become allied to each other (thanks to the Pulp and Paper Magazine) for their own common good, the occasion is ripe for some time in the future for at least a three-day conference of knowledge, technology, engineering, science, etc., appertaining to the pulp and paper industries of the three countries.

The question of closing down paper mills in England between 12.30 p.m. on Saturday to 6 a.m. on Monday, which has caused several serious strikes recently in some of the large mills, has not been definitely settled yet and is not likely to be for some time. When the question is raised by the employees there are generally several other matters thrown in for the employers to deal with, and so far all trouble has been met by the employers agreeing to grant the minor requests, but the main question, viz: the closing of mills for the week-end, is shelved by being left over pending a general adjustment. Being of the opinion that halfa loaf is better than no bread, the employees resumed work and of course the agitation on the week-end subject is continued. That about sums up the position of the labour unrest in England at present. Some months ago we were of the opinion that the subject had been fully discussed and settled. But instead of being dead it is a "corpse" that is very much alive, and it will keep so until the mill owners agree amongst themselves. Their difficulty is the small and large mills in competition and the position a mill is located in. For instance, one mill getting pulp from Quebec might get it two days earlier than another and these two days have got to be made up in some way. Then the South of England mills are not so eager for closing down during the week-end as those in Lancashire and other places in the North. So between the lot we are having a lively time.

The use of cardboard in various trades and industries in the United Kingdom has extended enormously in recent years, and paper mills producing it have in consequence done very well .Boxes made for use in the drapery, chemical, and other businesses, have become so popular that the cardboard has actually reduced the receipts of all the railways, because they have not had the freightage they could have received on returned wooden empty cases and crates. The growing demand for cardboard has been one of the reasons why the railways in the United Kingdom decided to increase their rates and it is expected that in the near future goods packed in cardboard will travel at owner's risk. This means that paper mills turning out boards will have to give greater attention to the production of a cardboard that will meet the requirements of the great houses using it, the representatives of which say that a substantial and light material, capable of standing rough handling, will be required . The railway companies assert that there is a growing tendency to use "unsuitable flimsy cardboard," which in the past has cost them no end of dollars in paying off claims for damage done to goods, and they are determined not to allow the practice to continue. Mills in Canada sending cardboard to England and Scotland would be well advised to get into early communication with their customers. There might be a settlement over the question as all the big users of cardboard are protesting against the extra expenditure the railways are putting them, but one may rest assured that a better class of cardboard than is in use at present, will have to be put on the market.

It will be remembered that at the last annual meeting of Becker & Co., Ltd., a report of which appeared in the Pulp and Paper Magazine, the directors recommended that the remainder of the Company's capital amounting to £15,000 be issued. The shares have since been offered at par to existing shareholders and business connections and considering the unsatisfactory state of the money market it is interesting to announce that the new issue has been considerably oversubscribed, the ready response being of course due to the successful wood pulp operations of Becker & Co., Ltd., year after year. The company is an excellent investment and shares in it have stood at a premium for some years back. The directors of the United Alkali Co., Ltd., now recommend that their ordinary share capital be reduced to £60,000 by writing £8 off each £10 share. The reduced shares will be subdivided into £1 shares. The scheme is promulgated, the directors say, to meet a general desire on the part of the share-holders that the capital of the company should be reduced. The company has an issued share capital of £5,818,670, of which £2,825,240 is in 7 per cent. preference and £2,993,430 in ordinary shares. No dividend was paid on the ordinary shares for 1912. For each of three years before that 2 per cent. was paid on them, for 1908 nothing, and for 1907 and 1906 2 per cent. each time. The report for 1912 showed a net profit £236,173 as against £321,970 in 1911 and £328,965 in 1910.

The Trade Board returns for June shows an all-round increase in the imports, exports and re-exports of paper, the following being the figures compared with June, 1912.

	1912	1913
Imports of Paper, Boards, etc.......	£455,125	£620,826
Exports of Paper, Boards, etc.......	217,277	294,041
Re-exports of Paper, etc.............	27,658	27,751

Of the imports of printing or writings on reels £52,113 worth were received from Newfoundland and this shows an increase over June of last year of £26,164. The United States exported to the British market £430 worth of the same paper as against £2,807 in June 1912. The exports show that British paper makers shipped to Canada in June £1,392 worth of writing paper, compared with £768 in June 1912, and £12,980 worth of printing paper, compared with £11,184 and £562 worth of paper unenumerated compared with 646. The trade for the half year ending June is given as follows:—

Imports of Paper, Boards, etc.......	£3,304,927	£3,868,633
Exports of Paper, Boards, etc.......	1,691,344	1,888,828
Re-exports of paper, etc.............	92,131	126,028

During the first six months of this year £114,255 worth of printing or writing paper was received into England from Newfoundland, compared with £76,817 worth for the corresponding period in 1912. The United States shows a great reduction £8,556 as against £13,517. The six month's exports also show that Canada received from the English papermakers £7,854 worth of writings, compared with £5,204 for the first half of 1912, and £82,827 worth of printings, compared with £60,354, and 4,498 worth of unenumerated paper compared with £7,416 over the corresponding period in 1912. Therefore, the exports of paper and boards to Canada show a gradual increase year after year for more than half a decade.

The imports of wood pulp during June amounted to £460,651 compared with £369,316 for the same month last year. The total for the six months of the year reached £2,019,946 as against £1,722,814 for the first half of 1912. Mechanical wet was imported in June from Canada to the value of £15,147, an increase of £8,800, which is very considerable. Norway was the largest shipper to England (£47,309) with Sweden next and then Canada. Sweden has the lead in supplying unbleached chemical to the British papermakers with Norway, Russia and Germany next in the order given. Norway is the largest supplier of bleached chemical, with Germany next in order and then Sweden. Canada's six months supply of Mechanical Wet reached £61,125 as compared with £25,797 during the first half of 1912. It will be observed that Canada is commencing to occupy a respectable position as regards the supply of mechanical, and the attention Canadians are now beginning to give the British market augurs well for the future.

It is not often one hears of a paper-making firm being interested in agricultural pursuits. The Darwen Wall Paper Manufacturers, Ltd., have been awarded a silver cup and a medal for the best cow exhibited at one of the English provincial agricultural shows. They also gained other prizes and the classes were open to competition from all parts of England. Reports do not say whether the cows were fed on Canadian or Scandinavian pulp, or German straw pulps.

FORESTRY IN SOUTH AFRICA

Progressive Policy Inaugurated by the Federal Government

The report recently issued by the Chief Conservator of Forests in South Africa for the year ending on December 31st, 1911, is of considerable interest by way of comparison with what is being done along forestry lines in this country. For such a young Union the progress made is remarkable, and considerable credit is due to the Forest Department for the efficiency already attained in administration and fire-protection.

The area of the Forest Reserves in the Union of South Africa in December, 1911, was 1,799,550 acres. Besides this, there were also 42,587 acres reserved for growing railway ties, on which railway funds alone were expended, making a total reserved area of 1,842,137 acres. This area is divided into seven conervancies—roughly speaking, a conservancy to each province in the Union. Each conservancy, consisting usually of several reserves, is administered by a District Forest Officer and a technically trained Assistant Forester. Under them are chiefs of reserves, forest guards, rangers, etc. The more important positions are all filled by technical foresters, usually highly trained men who have completed their course in the Oxford School of Forestry and in Germany. This organization very closely resembles that of the Canadian Government forest reserves.

Under their supervision, forest surveys are being made for the demarcation of new reserves, and existing reserves are being protected from fire by burning or cutting fire-belts. around the reserves and by planting up their perimeters with trees of the less inflammable species. As a result of these precautions, there were burned during the season of 1911 only seven hundred acres or 0.04% of the total area.

On the reserves themselves improvement cuttings are being carried on under the direction of forest officials, for the removal of defective timber and weed trees, and these operations not only have much improved the species composition of the forests but have proved financially justifiable, as well.

Replanting is also being extensively carried on in the various Reserves, the total area replanted at the end of 1911 being 48,136 acres. Several species of exotics are being introduced with considerable success. Nurseries are maintianed and the seed and transplants of forest trees are sold to the public at cost. About six thousand dollars worth of seed was sold by the Department during the year, together with 2,806,402 seedlings, valued at over $42,500.00.

KENORA'S POWER BEING LOOKED INTO FOR BIG BACKUS MILL,

Messrs. J. T. Jaeger and B. Niçhols, Jr., of International Falls, have visited Kenora to look over the water problem and site for the proposed pulp mills to be erected by the Backus interests. Both these gentlemen have been engaged on the development of the power and on the construction of the pulp and paper mills at International Falls and Fort Frances, and are there to study the conditions in regard to the development of the big power at the Norman dam on behalf of the Backus interests, who have the option on the property. They will also confer with Mr. Kennedy, C. E., of Montreal, who has been here for several days investigating water levels, etc.

From present indications it would appear that the Backus people intend to exercise their option of the power and work on its development will be commenced at an early date. Simultaneously with the development of the power, work will be proceeded with on the construction of the pulp mill.

END OF A PAPER MILL STRIKE IN ENGLAND.

(From Our London Representative).

London, July 16th, 1913.

The workers of the Ford Paper Mills, near Sunderland, County of Durham, numbering 180 men and women, who are all members of the National Union have been on strike for 22 days in support of their demand for an advance in wages to compensate for decreased earnings brought about through the recent reduction secured there of one hour on Saturdays and the abolition of the Sunday night shift. Since the granting of the shorter hours at week-ends by the northern employers of Lancashire, etc., there have been instances at various paper mills where the payment for the wages lost through the reduced hours have not been conceded and the Ford Mill was selected by the executive of the National Union as a test case. The strike has been won at a cost of about $1,680. From start to finish the dispute has been notable for the entire absence of rowdyisn and no attempt was made by the firm to import non-union labour. Substantial increases of pay have been made to the employees and including recent advances to the finishers and others, the extra cost of the increased wages was stated by the firm to amount to over $4,800 a year. In certain departments it had to be admitted that the rates paid were from 72 cents to $2½ per week higher at Ford Mill than was the case at competing mills in the northern district of England working on the shorter hours' system and further advances for them were not pressed by the Union.

FORT FRANCES TAX-PAYERS WIN OUT AGAINST PAPER COMPANY.

By an order of the Ontario Railway Board, signed by Chairman D. M. McIntyre, the appeal of the Ontario & Minnesota Power Company against the fixed assessment of $600,000 for school purposes in Fort Frances was dismissed. The battle was a long-drawn-out one, and an appeal was taken by the company to the assessment of 1911. By the judgment the tax-payers of Fort Frances win on all counts. This decision will, no doubt, put an end to this controversy.

RUSSIA EXCLUDED FROM MOST FAVORED NATION TREATMENT.

Washington July 29.—Secretary McAdoo today announced that wood pulp and paper would not be admitted free of duty from Russia under "most favored nation" treatment, the treaty of commerce and navigation between the United States and Russia having been abrogated. The customs court recently decided that European countries with favored-nation treaties with the United States were entitled to free wood pulp and paper because that provision was granted to Canada. The treasury department has accepted that principle, but for the time being will apply it only to Norway, Sustria-Hungary, and Germany, which, aside from Russia, were the only countries directly involved in the decision.

Secretary McAdoo has asked Secretary Bryan to ascertain whether Sweden, Belgium, Finland, Newfoundland, England and Denmark are entitled to free entry by virtue of their treaty rights. Wood pulp and paper come from all these countries, but as they were not specifically mentioned by the court the State Department is asked to decide whether they come within the purview of the decision.

In view of the abrogation on December 31 last, of the treaty of 1832 with Russia, wood pulp and paper importations from that country since that time will be assessed for duty. Acceptance of the customs court's decision ultimately will result in the United States surrendering $3,000,000 in duty already collected.

WATER POWERS OF B. C.

For the purpose of consulting with the British Columbia Government with regard to water powers in the railway belt there, J. B. Challis, superintendent of the Dominion water powers branch, and S. J. Robins, assistant private secretary to the Minister of the Interior, left the Capital on July 29th for the coast.

The ownership of certain water powers there has not yet been clearly defined. Both the Federal and the Provincial Governments claim ownership, and a discussion has been going on for some time, more particularly as to whether the Dominion or the Provincial Government has jurisdiction over the Hudson Hope Power Company. A report will be submitted to the Minister of the Interior on the return of his officials.

LONG SAULT DEVELOPMENT.

The report of the Conservation Commission on the Long Sault power development scheme will shortly be ready for submission to the Government.

It will declare emphatically against such an undertaking being turned over to any company, it should be done by the Government.

The engineers have found the scheme quite feasible from their standpount, but there would be danger to navigation, as well as risk of flooding adjacent territory. The immense value of the power as a natural resource will be emphasized, toaether with a declaration that its "export" from the country should not be permitted.

The report is now being revised by the Hon. Clifford Sifton, chairman of the committee.

ABITIBI ISSUE IS NOW POSTPONED.

The issue of $500,000 of the 7 per cent. cumulative convertible preferred shares of the Abitibi Pulp & Paper Co., which was to have been made during July at $95 per share, with a 50 per cent. bonus of common stock, has been postponed. The present condition of the money market is given as the reason for delaying the public offering.

ENJOYABLE OUTING.

The Employees of the Barber Paper & Coating Mills Ltd., held their annual outing in the Stanley Park at Erin on Saturday July 26th. The entire park was turned over to them and all enjoyed the outing.

After a lunch, the following athletic events were run off with substantial prizes for each:

Pick-a-back-Race, 100 yards; Potato Race, (Ladies'), 20 yards; Wheelbarrow Race, 25 yards; Partners Cigarette Race, 150 yards; Dash, 100 yards; Ladies' race, 50 yards; Dash, 50 yards; Visitors Race, (Ladies'), 50 yards; Visitors Race, (Gents'), 100 yards; Obstacle Race, 150 yard; Foot Ball Contest (Ladies'); Base Ball, Married and Single Men; Foot Ball, Married and Single Men.

Tea was served at six o'clock and the day closed with a dance. Every one present declared it to be the most successful picnic yet held, and all look forward to a repetition next year.

WAYAGAMACK STATEMENT.

In the Wayagamack Pulp & Paper statement of assets and liabilities as of June 30, the total assets are places at $9,385.663.

This is made up of cash and accounts receivable, $145,787; pulp wood, $145,951; lumber in yard, $61,566; logs in boom and river, $285,707; stores, $53,066, and stocks of paper in hand, $54,990; a total of $601,284.

These assets, it has been pointed out, have a stated market commodity value and are unusually liquid for a manufacturing company.

Buildings, plant and machinery are written down at $2,077,784, while the party, limits, real estate, etc., are placed at $6,560,807; total $9,385,663.

Against the $601,284 of liquid assets are current liabilities of $524,460, including $190,371 accounts payable, $118,207 bills payable, loans $128,381, accrued interest $87,500; total, $524,460.

Additional liabilities are:—Operation charges accrued, $41,162; reserve, $168,266. The capital liabilities are bonds $3,500,000 and common stock $5,000,000.

The profit and loss account of $151,773 makes up the balance. They have evidently heavily capitalized the future.

E. W. BACKUS PROPOSES BIG MILL FOR KENORA.

E. W. Backus, president of the Ont. & Minn. Power Company and the Fort Frances Pulp and Paper Company, of International Falls, was at Kenora last week looking over the big water power on which he has an option.

The Kenora Miner and News speaking of his visits says: "Mr. E. W. Backus, of Minneapolis, the leading factor in the promotion of the proposed pulp mill here, arrived in town Thurdsay and spent the day in company with Mr. D. McLeod, manager of the Keewatin Lumber Co., looking over the big dam and the proposed site of the pulp mill.

Mr. Backus if confident that if he is successful in securing the pulp wood concessions his company will go ahead at once with the development of the big power, on which they hold an option, and also with the construction of the pulp mill."

RECORD PULPWOOD SHIPMENTS.

Record-breaking shipments of pulpwood are being made to the United States, according to the records of the American Consular Agent at Cookshire, Que.

During the three months' period just ended a total of $327,169 passed through there. This is greater than the total shipment of pulpwood through there during the entire year of 1912 or of 1911. The total in 1912 was $237,504 and in 1911, $235,316.

Reports to the Consular Agent say that there is still immense quantities of the pulpwood yet to move, and that the principal companies will not have it all loaded and shipped before the snow flies.

The rains of the past few days have raised the rivers so that all the pulpwood which has not been floated to loading stations, will now be moving.

The January trade inquiries have been received at the Department of Trade and Commerce, Ottawa:

671. **Paper.**—A firm of general merchants at Sydney, Australia, desires to get into touch with paper mills in Canada open to interest themselves in the Australian market. They are particularly desrious of purchasing brown wrapping paper.

672. **Wood Pulp.**—A correspondent in Belgium makes inquiry for the names of Canadian manufacturers of wood pulp, either chemical or mechanical.

SIR LOMER GOUIN ON WOOD PROHIBITION.

Sir Lomer Gouin, the premier of Quebec Province, stated to certain paper interests a few days ago, that no matter what was done in regard to the tariff by the new Administration at Washington, the embargo on Crown Lands pulp wood in Canada would not be raised. This sets definitely at rest the uncertainties over Crown Lands wood in case a discriminatory tariff is imposed by the United States. It is believed here that paper and pulp will be admitted free to the United States, while as regards chemical pulp, manufacturers here can see no reason for putting on a discriminatory tax, since there has been no demand for this from sulphite manufacturers in the States, and since, in any case, a discriminatory tax on sulphite made from Crown Lands wood would fail in its object of getting the embargo on such wood raised.

SAWMILLS STILL IDLE.

All of the sawmills at St. John are still idle, and no action has been taken to endeavor to bring about any agreement between mill owners and workmen. The latter have been able to find plenty of work elsewhere, because there is so much general construction work in progress this summer. There has been a falling off, however, in lumber shipments.

REGARDING TRUCK WHEELS.

For some reason factories prefer to use trucks with metal tires and to pay consequent repair bills on the floors rather than to use a soft tired wheel and avoid such repair expense. Leonard C. Watson recently had occasion to state that this comes partly from the bother of keeping soft tired wheels in proper condition and partly because moving loads on soft tired wheels requires more power than hard tired wheels. Mr. Watson then went on to say that there are available wheels made with fibre tires, wheels made with sheets of fibre bolted together, and wooden wheels made in various ways. A wheel made with hardwood cut into sectors with wood breaking joints, makes an entirely satisfactory wheel for heavy loads, and is paticularly good under wet conditions Trucks equipped with wheels of this sort will save money and repair bills and will operate as easily as a truck with metal wheels.

PAPER IN CHINA.

Mr. Seki publishes his view on the future demand for paper in China in the May issue of the "Shigyo-Zasshi" (Paper Journal), Tokyo, of which he is editor. He enumerates the following points as the principal reasons why the new Republic will continue long in future to be a good customer for foreign paper. In the first place, China has very limited resources in the supply of wood pulp, whereas bamboo, cotton, and hemp wastes, which are in abundance, are not likely to produce the papers of extensive demand. In the second place, civilized localities are poorly made in geographical features for the utilisation of water-power. Thirdly, the Chinese people are not trained to become an industrial nation, technically as well as psychologically, ingenious as they are in commerce. Further, he argues on the position of Japan as supplier to the neighbouring vast market, and refers to the main policy of the paper manufacturers in Japan. To lead Japanese paper manufacturers on the direction to compete with European papers in high-grade commodities is unwise in every sense. Japan is the Scandinavia in the East, and Japanese paper manufacturers are following the course along which the Swedish and Norwegian paper industry has developed.

PULP AND PAPER NEWS

The Merriton plant and the Riordan Pulp and Paper Co. started up last week, in full capacity of 25 tons of high grade easy bleaching sulphite.

John Martin of the John Martin Paper Co., Winnipeg, accompanied by his wife and family, were in Toronto and Montreal last week on their way home from Maine, where they have been spending some holidays.

A meeting of shareholders of the Spanish River Pulp and Paper Mills Company was held on July 28, and at its conclusion the announcement was made that the proposed amalgamation with the Lake Superior Corporation, had been ratified.

The Minnesota and Ontario Power Co. and the Fort Frances Pulp and Paper Co. have lost in an appeal for school taxation at a valuation of $600,000. The case has been up for some time and was only just decided in favor of the town.

The forestry department of the Provincial government of British Columbia, has issued a notice to the effect that the tax provided for the Forest Act in regard to old crown granted timber will be put into operation at once. The tax runs from one to two dollars per 1,000 feet.

The post office department is considering the whole question of parcels post. No announcement will be made as to rates, etc., for some time, however. It was hoped to start the service Jan. 1, but there is no definite announcement as to this. Meanwhile rural mail routes are increasing and there are now 1,500 in operation.

Mr. Carl Riordan, President of the Canadian Pulp and Paper Association, Managing Director of the Riordan Pulp and Paper Co., Ltd., has been confined to his bed for ten days. He returned to his office at the first of last week feeling somewhat better although not quite restored to full health.

The recent increase in rates in the Intercolonial Railway has been the subject of strenuous protest by all industrial interests in the Maritime Provinces. The Government has, however, handed down a decision that the rates will remain at the present increase. This will effect many pulp and paper interests.

The Albert L. Reed Company, of London, who purchased the old Miramichi Sulphite Mill, are now removing the machinery to the Dominion Pulp Mill across the river at Chatham, which they also own. As was stated before, the property was purchased for the limits and not for the purpose of operating the plant.

Sir John S. Willison, President and Editor in Chief of the Toronto News, has been selected Chairman of the Empire Press Union of Great Britain, Canadian Division. There is a proposal to hold the Press Conference in Cznada this Fall. The Canadian premier has approved of the suggestion and doubtless the Conference will be in Toronto.

Owing to the recent strike in the lumber mills at St. John, N.B., which is still on, the lime kilns have been unable to get the wood necessary for burning their lime. The supply of lime has consequently gone bad. The Edward Partington Pulp and Paper Co., at St. John and the Dominion Pulp Co. at Chatham, N.B., are seemingly affected and have suffered considerably.

When H. L. Drayton, K.C. Chairman of the Railway Commission left on Saturday for England to take up the question of the control of ocean rates with the Imperial Government, he took with him a formidable statistical statement as a basis upon which to open negotiations. Government officials have been engaged on the preparation of this statement for some time.

James A. Ritchie, of Sault Ste. Marie, Ontario, who was chief ranger fire ranger between Hawke Lake and Oba was killed last week near Oba. He was riding on a construction train loaded with gravel, which commenced to slide from under him. Being unable to catch hold of anything he fell between the cars and met instant death. Mr. Ritchie acted as government scaler during the winter months.

The Crown Lands Department of the Ontario Government has decided to ask for tenders for the timber on the Crown lands which was burned over in the recent fires. J. F. Whitson, Government Commissioner, in charge of the special northern development work of the Province, reports, after a personal investigation that the press despatches describing these fires, particularly around Cochrane, were much exaggerated.

An interesting trio of visitors to the various water power plants in the Niagara district last week were George Chahoon, jr., F. A. Sabatton and J. H. A. Acer of the Laurentide Co., Montreal, who, on their return to that city were more impressed than ever, with the possibilities of the increased power proposition at Grand Mere, where they think that they have one of the cheapest power producing plants in the world when the additional equipment is installed.

Louis Gray, who was formerly connected withthe Imperial Pulp and Paper Mills at Sturgeon Falls, Ontario, previous to their passing into the hands of the Spanish River Pulp and Paper Mills, Ltd., and who now resides in Milwaukee. Wis. was in Toronto last week for several days on business. It is understood that he is promoting a sulphite mill which will be erected near Cochrane and that Chicago and other capitalists are interested in the proposition, the details of which are not yet obtainable.

Construction on the first section of the enlarged Welland canal has been provided for and the federal government has accepted the offer of the Dominion Dredging Co. of Ottawa to build the inital section. Their tender was the lowest, being $3,500,000 and provides for the construction of the first few miles of the canal from the Lake Ontario end. Tenders for other sections will be called for shortly. The new waterway will, when completed, allow the largest lake boats to pass through with heavy cargoes of pulp wood, grain, etc.

Many friends in the pulp and paper trade learned with regret of the death of James Conmee, ex M.P. who passed away a few days ago at Prescott, Arizona, at the age of sixty-five years. He was largely interested in lumbering, railway and mining ventures and was known in timber and pulp circles from one end of Canada to the other. He first entered public life as mayor of Port Arthur and then was elected to the Ontario Legislature as a Liberal sitting from 1885 until 1904 when he was returned for the federal seat of Thunder Bay and Rainy River.

An attempt is now being made in the west to introduce machinery using flax straw for the making of binder twine and thus render the western farmer independent of the present binder twine trust. In the three prairie provinces every year there are thousands of tons of flax straw burned in the fields and, if this raw product can be utilized for the manufacture of a new twine, within the provinces themselves, it will mean the saving of an immense amount of money to the farmers. The experiment is not very far advanced yet but there is good reason, it is said, to expect satisfactory results.

Fire broke out in the large drying kilns of the Adam Beck Box Factory at London last week and did damage to the extent of about $12,000. Spreading through the L-shaped wing of the kiln, the flames at one time threatened to wipe out the entire mill, factory and offices, but the firemen succeeded in confining the blaze to the building in which is originated. Many tons of water were poured in the place on both floors of the structure but the manner in which the thin sheets of cedar, which are used for making cigar boxes, were piled, protected the blaze until it burned its way to the surface. The fire is believed to have started from the heat of the kiln among the cedar slabs.

The Western Canadian Press Association has decided to merge that organization with the Canadian Press Association. The two Associations have been affiliated for some time and the desire to effect closer union was made in view of the recent decision of the Canadian Press Association to employ a permanent secretary and to greatly extend the scope of activities. The members of the Western Canadian Press Association will continue their local organization under the name of the Manitoba—Saskatchewan Division. The recent merger is the first step towards the solidifying the various provincial and interprovincial associations throughout Canada into one strong national body.

Manning, Maxwell & Moore, Inc., of New York City, together with their subsidiary companies, will move their general offices on or about October 1st, from 85-89 Liberty Street to the new Lewisohn Building, 113-119 West 40th Street. This change is being made to meet the demand for a more convenient and central location, as well as larger space to handle material increases in their various lines, which cover Electric Travelling Cranes, Machine Tools, Engineering Specialties, Railway, Machinists, Engineers, Factory and Contractors supplies. A large portion of this product is manufactured by their constituent companies, The Shaw Electric Crane Co., The Ashcroft Manufacturing Company, The Consolidated Safety Valve Co., The Hayden & Derby Mfg. Co. and the Hancock Inspirator Co.

FIRE PROTECTION PROVES PROFITABLE.

As the result of a special campaign for improvement, an important saving in the amount of payments for fire losses along its right of way is reported by the Atchison, Topeka & Santa Fe Railway. In 1910, the company had claims for 1,509 fire losses, amounting to $100,605. In 1911, there were 574 fires with claims amounting to $51,000. In 1912, the number of fires had been reduced to 135, and the expenditure for the payment of claims to only $6,000.

In order to secure these results the efficiency of the spark arresters on locomotives was increased, and a more frequent inspection was provided, to ensure prompt correction of defects. Section gangs, trainmen, and other employees, were also impressed with the necessity of giving prompt attention to the suppression of fires in their incipiency. The co-operation of all employees was also secured in connection with the destruction of inflammable material on the right of way and the plowing of fire guards in cultivated fields.

The experience of the Santa Fe clearly indicates that efficient fire protection along railway lines is good business policy on the part of such companies.—C.L

THE RECOVERY OF WASTE SULPHITE LIQUOR.

Engineer J. H. Wallin some time ago gave the following. figures with regard to the plant installed in his mill at Kopmansholmen: Annual production of sulphite pulp amounted to 12,000 tons, daily yield of alcohol 520 gallons. The cost of production of alcohol from sulphite pulp liquor is said to average in Sweden 11.2 cents for one gallon; recent experience has shown that the expenses are considerably lower when large quantities of the waste liquor can be treated under special conditions.

It has been calculated that the cost of production for one ton of sulphite pulp would be reduced by $2.65 by the adoption of the manufacture of alcohol as a by-product. It must be remembered that these figures apply only to Sweden, and up to the present, the utilisation of sulphite pulp liquor for the production of alcohol, at least on a commercial scale, has been confined to that country. The heavy taxes imposed elsewhere on the recovery of alcohol have precluded the introduction of any methods dealing with this form of utilising sulphite waste liquor; this is especially the case in Germany.

The alcohol obtained from sulphite pulp liquor is not fit for pharmaceutical purposes or for human consumption in the form of spirits; it can only be used for technical purposes. In the first place it contains about 10 per cent. of methyl alcohol (indeed, ground wood is an excellent material for the production of this alcohol); in addition the presence of appreciable quantities of acetone has been proved, while acetaldehyde, traces of terpenes and probably other impurities are also present.

THE WATER SUPPLY IN PAPER MILLS.

A writer in the "Papierfabrikant" points out that in studying the question of mill water supply, it is important to give consideration to its distribution to the various places of consumption. One advantageous system of distributing the water necessitates a large reservoir in as elevated a position as possible and pipes by the directest routes therefrom. In paper mills it is important that the water-pressure, "e.g.," at the paper machine, is always as high as possible, and constant. Variations in the water-pressure give rise, especially in thick papers, to variations in weight, and with shower-pipe dampening of the paper cause such dampening to be irregular. Moreover the work of the suction boxes is unfavorably influenced by variations of pressure in the water supply. The pressure for the shower-pipes must be as high as possible, for the cleansing action of the water-jet depends very much on the existent pressure of the water.

USE OF WASTE WOOD.

Grind into pulp, with the aid of a cheap grinder, or the installation of a grinding box, as near as possible to the upper edge of the stone, which can be filled with the waste. The so-called "sauer-kraut" can be reduced in a suitable fibre machine to coarse wood pulp, which, after passing through the refiner, can be used for making paper and pasteboard. The "sauer-kraut" can also be reduced to fibre in the edge mill, but the result is disproportionately small, compared with the expenditure of power and time. In warm weather, with suitable wind, the refuse may be dried for use as fuel under the boilers, and must be spared about to ensure the proper drying.

The MARKETS

CANADIAN MARKETS

There is little new to report in general market conditions. Matters are if anything a little quieter than a fortnight ago and many jobbers and other members of the trade are holidaying at various resorts. There is little fresh business in any line and all paper mills are pretty well caught up with orders. Several book and writing plants are kept going on contracts. There are no changes in prices to record. News print continues fair. The two additional machines of 120 inches width of the Spanish River Pulp and Paper Co. at Espanola were started last week and are running smoothly. This will increase the company's production about sixty tons per day. The wrapping paper situation is rather listless and kraft is in fair demand. Jobbers report equal to last season at this time in spite of the monetary stringency, but orders are more difficult to secure. The figures for bleached and unbleached continue firm but in ground wood pulp there is not much doing at present. The mills, however, are holding out for present prices believing that, with the growing scarcity of water on the other side of the line, there will shortly be more inquiries. The rag and paper stock situation remains unaltered and a decline is reported in roofing stock quotations of about five cents per hundred. As soon as the vacation period is over, it believed by those who have closely followed pulp and paper that an active business will be done.

Quotations, f.o.b. Toronto, are:

Paper.

Newa (rolls) $42 to $44.
News (sheet) $46 to $50 ,f.o.b. mill.
Book papers (carload) No. 3. $4 to $4.35.
Book paper (ton lots) No. 3, 4c. to 4½c.
Book paper (carload) No. 2, 4½c.
Book paper (ton lots) No. 2, 4½c. to 5¼c.
Book papers (carload) No. 1, 5c. to 6c.
Book papers (ton lots) No. 1, 5¼c. to 6½c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.35 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3¾c, to 5c.

Pulp.

Ground wood (at mill), $16 to $17
Ground wood ,$22 to $24.50, delivered in United States.
Sulphite (unbleached), $45 to $46, delivered in Canada.
Sulphite (unbleached), $44 to $49, delivered in United States.
Sulphite (bleached), $58 to $60 delivered in Canada.
Sulphite (bleached), $60 to $64, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft white shavings, $1.70.
No. 1 Mixed shavings, 60c.
White blanks, 97½c.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.50.
No. 1 book stock, 80c.
No. 2 book stock. 55c.
No. 1 manilla envelope cuttings, $1.15
No. 1 print manilas, 65c.
Folded news, 45c.
Over issues, 50c.
No. 1 clean mixed paper; 30c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.75.
No. 1 white shirt cuttings, $5.
Blue overall cuttings, $3.50 to 3.62½
Black overall cuttings, $1.65 to $1 75
Black linings, $1.65 to $1.75.
New light flannelettes, $5.00
Ordinary satinets, 77¾c. to 80c.
Floc. satinets, 90c.

Quotations for Montreal are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book papers, carload lots, No. 3, 4⅛c. to 4½c.
Book papers, broken lots, No. 3, 4¼c. to 4¾c
Carload lots, No. 2, 4¾c.
Manila B., 3¼c. to 3½c.
Broken lots, No. 2, 5c. to 5½c.
Carload lots, No. 1, 5¼c. to 6¼c.
Broken lots, No. 1, 6¼c. to 6¾c

Pulp.

Sulphite Easy Blaeching, fo.b. Montreal. $44 to $45 per ton.
News quality, f.o b. Montreal, $42 to $43 per ton.
Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $6, f.o.b. Montreal.
Gorund Wood, No. 2, $22 to $24, delivered United States.

Wrappings.

Fibre. 4c. to 4¼c.
No. 2 manila, 3¾c. to 4c.
No. 1 manilla, 3½c. to 4½c.
Kraft, 4c. to 4¾c.

Paper Stock.

No. 1 hard shavings, $1.90 to $1.95.
No. 1 soft white shavings, $1.60 to $1.75
No.2 soft white shavings, $1.15.
Mixed shavings, 50c. to 55c.
White blanks, 85c. to 90c.
Ledger, $1.15 to $1.25.
No. 1 book stock, 90c.
No. 2 book stock, 45c. to 55c.
Manila envelope cuttings, $1.05 to $1.10.

White envelope cuttings, $1.75.
No. 1 print manilas, 55c. to 60c.
Folded news, 55c. to 60c.
Crushed news, 45c. to 50c.
Good mixed paper, 40c. to 43c.
Old white cotton, $2.50 to $2.75.
Mixed cottons, $1.60 to $1.75.
Light cottons, $1.75.
No. 1 white shirt cuttings, $5.50 to $5.75.
Light print cuttings, $4.00 to $4.50.
Fancy shirt cuttings, $2.10 to $2.50.
Blue overall cuttings, $3.45 to $3.55.
Brown overall cuttings, $2.25 to $2.50.
Black overall cuttings, $1.55 to $1.70.
Linings, $1.50 to $1.75.
New unbleached cotton, $4.60 to $5.00.
Bleached and unbleached cotton, $4.50 to $5.00.
Bleached and unbleached shoe clips, $4.00 to $4.50.
New light flannelettes, $3.75 to $4.25.
Flock satinets roofing stock, 95c. to $1.00.

NEW YORK MARKETS.

(Special to Pulp and Paper Magazine).

New York, N.Y. July 25, 1913.

The situation of the ground wood pulp market is rather acute at present. Rains throughout northern New York during the past couple of weeks have only brought partial relief. Rivers and streams are vey low all over the country and grinders are now operating on a small percentage basis only. Supplies at the consuming mills are very low, and numerous inquiries are being received for additional lots. Makers are very firm in their views and the majority of them are holding up their products for higher prices than are at present quoted. It is the consensus of opinion that very high levels will be recorded during the latter part of August, unless prolonged rains intervene.

Importers and dealers continue to receive some business in sulphites, but it is noticeably small, as is usually the case at this period of the year. The prime movement at present is confined chiefly to withdrawals on old contracts. Stocks in local hands are comparatively light, as arrivals are passing immediately into consuming channels. The decision last week of the Treasury Department not to carry the Canadian wood pulp case to the higher courts, but to make refunds on pulp entries since July 26, 1911, and to enter importations hereafter free of duty, has caused everybody concerned to feel happy. Importers are now looking for a very brisk fall business to repay them for the arduous task they had in making the United States Government recognize the demands of those countries enjoying favored nation treaties with this country. Bleached Sulphites, Krafts, and Sulphates continue to manifest a very strong tone. Prices are exceptionally strong with a tendency towards higher levels. Unbleached Sulphites and Easy Bleaching Sulphites, however, are inclined to be weak as numerous requests are reported to hold up shipments for the timebeing. Prices, nevertheless have not changed in any description, and previous levels continue to be the criterion of the market.

The local waste paper market is even weaker now than it was two weeks ago. Prices in many grades have gone off again from five to fifteen points, and values at present are lower than they have been for a number of years at this period. Very few of the descriptions are moving. Even the better grades which generally are in fair demand are barely active, and several of the chief packers say that they have not seen conditions so poor in years. Accumulations are assuming large proportions, and concessions are not refused on actual business to move stocks. The commons are in less demand than the better grades, and in many instances packers are refusing to take stocks from their collectors

Pulp.

Ground wood, No. 1, $18 to $19 per short ton, f.o.b. mill.
Ground wood, No. 2 $16 to $17 per short ton, f.o.b. mill.
Unbleached sulphite, domestic, 2.15c. to 2.30c., delivered.
Bleached sulphite, domestic, 3c. to 3.15c., delivered.
Unbleached sulphite, foreign, 2.05c. to 2.30c., ex-dock, N.Y.
Bleached sulphite, foreign, 3c. to 3.25c., ex-dock, N.Y.
Bleached suplhate, foreign, 2.60c. to 3c., ex-dock, N.Y.
Unbleached sulphate, foreign, 1.90c. to 2.10c., ex-dock, N.Y.
Bleached soda pulp, domestic, 2.15c. to 2|35c. delivered.
Kraft pulp, foreign, 2c. to 2.20c., ex-dock, N.Y.

Paper.

The reports heard in the local trade regarding conditions in this market are all of the same tener, and it is quite evident that July is passing very quietly. The paper men generally are counting more on what the future holds in store for them rather than on the small business now in progress. Indications are that July sales will show a considerable decrease at most points because of the usual summer influences which is augmented this year by the pending tariff changes. Quite a few millmen and jobbers have already passed the opinions that this month will go on record for the smallness in business. A prominent manufacturer from the middle western section while visiting the local trade this week stated to your correspondent that the general impression prevailed in his locality that business is toning up a little. The trade there, however, does not expect much improvement during the month of August, and especially not during the first half of the month. The more cheerful sentiment that is abroad applies to the fall trade. But the volume of business is slowly creeping upward, and the toning up of prices which is met with in various lines of the trade seems to be due to the better state of orders booked at the mills. One pleasing feature about the situation is the firm basis on which prices are maintained. In no section are concessions being reported, and values, therefore continues along the lines previously reported as follows:

News, rolls, transient business, $2. to $2.10 f.o.b. mill.
News, rolls, contract renewals, $1.95 to $2.05, fo..b. mill.
News, sheet, $2.10 to $2.15, f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20, f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90, f.o.b. mill.
Writing paper superfine, 11c. to 13c., delivered east of the Mississippi River.
Writing paper, extra fine, 10½c., delivered east of the Mississippi River.
Writing paper, No. 1, fine, 9c., delivered east of the Mississippi River.
Writing paper, No. 2, fine, 8c., delivered east of the Mississippi River.
Writing paper, engine sized, 4½c. to 8c., delivered east of the Mississippi River.
Bond paper, 6c. to 24c., delivered east of Mississippi River.
Linen paper, 7c. to 18c., delivered east of Mississippi River.
Ledger paper, 8c. to 30c., delivered east of Mississippi River.
Manila jute, 4¾c. to 5¼c., delivered.
Manila, wood, $2.40 to $2.80, delivered.
Kraft, No. 1, $3.65 to $4.02½, f.o.b. mill.
Kraft, No. 2, $3.27½ to $3.77½, f.o.b. mill.
Screenings, $1.75 to $2.12½, delivered.
Boxboards, news, $30 to $32 per ton, delivered.
Boxboards, chip, $28 to $30 per ton, delivered.
Boxboards, straw, $28 to $29 per ton, delivered.

Wood pulp board, $42.50 to $45 per ton, delivered.
Tissue, white, cylinder, 42½c. to 45c., delivered.
Tissue, fourdrinier, 45c. to 50c., delivered.
Tissue, jute manila, 50c. to 55c., delivered.

THE BRITISH MARKETS.

(Special to the Pulp and Paper Magazine).

London, July 22, 1913.

There is a fair amount of business passing in the paper trade of the United Kingdom, particularly in regard to newsprint, and some of the London agents report that they are well pleased with the turn-over they are getting, notwithstanding the fact they are in the middle of the dog days. Contract working is now in full swing as most of the public bodies in the country are arranging for future supplies of paper and other necessaries and consequently there is a good deal of competition going on; but in most cases increased prices are being demanded by the paper manufacturers or their agents. Several leading firms in London have made the announcement that owing to the increased railway freightage they will only pay carriage on consignment of paper of 3 cwts and over. Consignments of less quantity will be sent carriage forward. This announcement should have the effect of placing larger orders with the paper agents and the manufacturers and put trade on a better footing. In some cases mills are reported to be running at full capacity.

The mechanical pulp market is weak and this is attributable to the large quantity of unsold stocks at the producing mills. Business is also dull, some parcels having exchanged hands at $9.60 for prompt delivery, but of course for forward movement a dollar to a dollar and a half would be put on. A drought is reported in Scandinavia, but London importers say this will not effect prices as the stocks on hand are heavy. Quotations are about as follows: –

Pine, 50% moist, prompt........	$9.60 to $9.70
Pine, dry, prompt..............	21.50 to 21.60

About half a dollar is quoted for forward delivery.

In chemical wood pulp very little new business is being transacted. This state of affairs is said to be due to the producers who will not allow any concession. They are very firm for prompt and next year's deliveries and until they show some modification in their attitude London buyers will hang out until the last moment before paying the prices asked. Meantime paper makers have large stocks on hand. Quotations are about as follows:

Bleached sulphite......................	$55.30 to $57.00
Easy bleaching sulphite (No. 1 quality).....	48.00 to 49.00
"News" or strong quality sulphite.......	38.40 to 47.00
Soda unbleached (No. 1 quality).........	38.00 to 38.50
Soda, unbleached (strong quality)	39.00 to 39.50
Soda Kraft............................	39.20 to 39.50

It must be admitted that the American revised tariff question has a material effect upon the chemical pulp markets of England and Scandinavia. This, combinedwith the unsatisfactory state of the money market at times and the European unrest, has made business slow all round. Scandinavia is waiting to see the outcome of the tariff question and it is reported that Americans are not at all disposed to do business with Sweden and Norway, or Germany, until they see a better field before them. All these facts influence a great firmness in the market and make it difficult for English buyers to cover their requirements at satisfactory prices.

The chemical market is not active at present owing to holidays in most of the large works. Prices are unchanged. Prices are:—Ammonia Alkali (58 per cent.) $18 to $19.20 per ton; Bleaching Powder, $25 (softwood); Caustic Soda, (77 per cent.) $48½ per ton; Soda Crystals $10.60 per ton.

As mills are engaged in stock-taking the demand for rags is not so great just at the moment. Prices, however, are firm. Esparto is also firm and the demand very steady. During June 17,018 tons of Esparto valued at £61,423, was imported into England as against 18,122 tons valued at £61,530 in June, 1912.

There is talk of China Clay producers forming a Federation and if this comes about an advance in price may be expected. Within the last few weeks the clay was advanced from 12 to 24 cents for prompt and new business. Meantime prices are very firm and the demand something enormous. Producers ogf Mineral White and Gypsum recently combined and they advanced prices, but only very slightly.

ENGLISH PULP MARKETS.

The department of trade and commerce issued this week the following bulletin from the Canadian trade commissioner in London:

"While there is a good demand for sulphite pulp, the market in Great Britain for the mechanical variety is at present in a somwhat demoralized state.

"There has latterly been such a large production of mechanical pulp in Scandinavia and elsewhere that the supply at present exceeds the demand, and current quotations have fallen to a level which ,it is thought, would render United Kingdom business unprofitable to Canadian manufactures.

"This is probably only a temporary state of affairs, for upon the other hand this office has quite recently been advised by several houses who deal in papermakers' supplies and in that connection handle large quantities of pulp, that even now they are looking for new sources of supply and are desirous of forming a permanent connection with Canadian manufacturers of both sulphite and mechanical wood pulp who are in a position to contract for regular supplies."

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR THREE WEEKS ENDING JUNE 21st.

(Special to Pulp and Paper Magazine)

		Quantity
Bleached Chemical Dry..................		910 tons
Unbleached Chemical Dry................		33,713 "
Chemical Wet		1,697 "
Mechanical Wet.........................		30,737 "
Mechanical Wet—		
Canada	2568 tons.	
Newfoundland..............	2384 "	

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR TWO WEEKS ENDING JULY 5th, 1913.

	Quantity.
Bleached Chemical Dry......................	716 tons
Unbleached Chemical Dry....................	8,218 "
Chemical Wet.............................	485 "
Mechanical Wet............................	19,149 "
Mechanical Wet—	
Canada	1772 tons
Newfoundland...........................	4203 "

SPANISH LAKE SUPERIOR MERGER DETAILS

The Spanish River Company will issue its own common stock in share-for-share exchange for the common stock of the other company, to the extent of $5,000,000; this is the total authorized issue of the Lake Superior Company, and at last accounts only $4,000,000 of it has been issued, so that it would appear that the Lake Superior will issue the balance of its own authorized stock before the merger..

Similarly, the Spanish River Company will issue its own preferred stock to the extent of $3,700,000 cumulative (7 per cent.) and participating, in exchange for $3,000,000 of preferred stock of the Lake Superior Company, non-cumulative (6 per cent.), non-participating and non-voting, and $900,000 in cash. The terms on which this block of Spanish River preferred will be distributed among the present holders of Lake Superior preferred and the contributors of the $900,000 cash respectively are not announced; but the Spanish River preferred is very closely held and it appears possible that the transaction may be put through "en bloc." In addition the purchasing company guarantees, principal and interest, the bond issue of the Lake Superior Company, of which $4,000,000 is issued.

As a result of this transaction the paid-up capital of the enlarged Spanish River Company will be as follows, the table showing the amount held as respectively by the old Spanish River holders and by the former Lake Superior holders:

Common	
Spanish River	$3,000,000
Lake Superior	4,000,000
	$7,000,000

Preferred	
Spanish River	$3,000,000
Lake Superior	3,700,000
	$6,700,000

It is proposed to take authority to increase the issue to ten millions of each class, so that there will be considerable margin of authorized but unissued stock after the merger. It will be observed that the Lake Superior holdings constitute a majority of each class.

The Lake Superior Paper Company Ltd., is the owner of the properties formerly held by the Sault Ste. Marie Pulp and Paper Co., which used to be controlled by the Lake Superior Corporation. That Corporation still holds a million of the common stock of Lake Superior Paper, and the balance of the scrip of that company is understood to be held by interests closely allied to the big steel concern. The directors are H. E. Talbot, president, Sault Ste. Marie; Geo. H. Mead, vice-president, Sault Ste, Marie; Capt. Newton, vice-president, Montreal; T. J. Drummond, Montreal; W. K. Whigham, London, England; J. Frater Taylor, Sault Ste. Marie, and W. E. Stavert, Montreal. With the exception of the president, all are Lake Superior Corporation directors.

Although Spanish River stocks are listed, it is about as difficult to get a line on their actual value, apart from the market, as in the case of Lake Superior. The company has never submitted a balance sheet. It was formed in 1911 and in 1912 it took over the Ontario Pulp and Paper Company, Ltd., by issuing two of its own common shares for three of Ontario Pulp. The directors are G. P. Grant, Toronto, president; T. H. Eatson, Toronto; T. H. Shepherd, Toronto; R. A. Lyon, Toronto; A. H. B. Mackenzie, Montreal; R. L. Innes, Hamilton, and James Bicknell, Toronto.

A notice was sent out to the shareholders of Spanish River calling a meeting, accompanied by a letter from T. H. Watson, vice-president and managing director of the Spanish River Pulp and Paper Company, which says in part:

"Under this arrangement $900.000 cash will be added to the working capital of your company and the consolidation includes some of the biggest financial interests in London.

The Lake Superior properties are within a hundred miles of our Espanola plant and embody an entirely new installation for the production of ground wood pulp and news print paper as well as a sulphite plant. They have four new paper machines of latest design with a capacity of 230 tons per day, which is practically the same capacity as the present plant of the Spanish Company, and the combined output of the plants will make your company the largest producer of news print paper in Canada.

"The Lake Superior Paper Company have acquired rights to cut pine, spruce, and other woods, over the land grants of the Algoma Central Railway, comprising 1,637,250 acres.

"The joint operation of these large plants will result in great economy as to cost of management and distribution of products and will materially reduce the cost of production by the increased efficiency in operation of all machines a maximum capacity.

"Both companies' mills are advantageously situated to care for western territory and to-day have booked contracts for about ninety per cent. of their output.

It is reported that the Lake Superior interests will, following a proposed increase in the board of directors of Spanish River. have four representatives on the new board out of a total of eleven. The present directorale is nine.

The Canadian Customs Board in Ottawa has abolished the import duty on matrices to be effective May 13th when the duty on type-setting and type-casting machines was removed.

TENDERS FOR PULPWOOD LIMIT

Tenders will be received by the undersigned up to and including Friday the 15th day of August next, for the right to cut pulpwood on a certain area tributary to the Lake of the Woods, in the District of Kenora.

Tenderers shall state the amount they are prepared to pay as bonus in addition to dues of 40c. per cord for Spruce, and 20c. per cord for other pulpwoods, or such other rates as may from time to time be fixed by the Lieutenant-Governor in Council, for the right to operate a pulp mill on or near the area referred to.

Such tenderer shall be required to erect a mill or mills on or near the territory, or in such place as shall be approved by the Lieutenant-Governor in Council, and to manufacture the wood into paper in the Dominion of Canada.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Honourable the Treasurer of the Province of Ontario for ten per cent. of the amount of their tender; to be forfeited in the event of their not entering into an agreement to carry out conditions, etc.

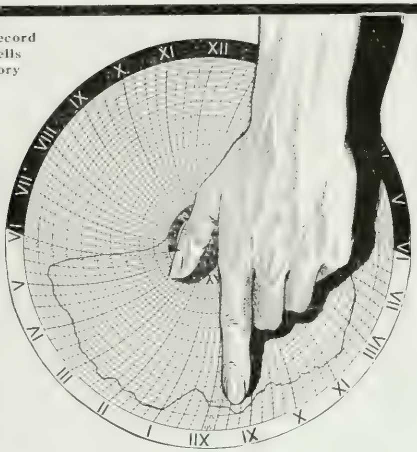
The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested etc., apply to the undersigned

W. H. HEARST,
Minister of Lands, Forests and Mines.
Toronto, Ontario.
May 20th, 1913.

The Power of Control at Your Finger Tips

The record line tells the story



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Then you will receive each morning, a Night and Day chart **showing** in black and white the **exact** pressure or vacuum carried in the troublesome process for every minute the day and night before. An authentic knowledge of results —of existing conditions will be at your finger tips. Trace the trouble and eliminate it. Result—a better product, a bigger production.

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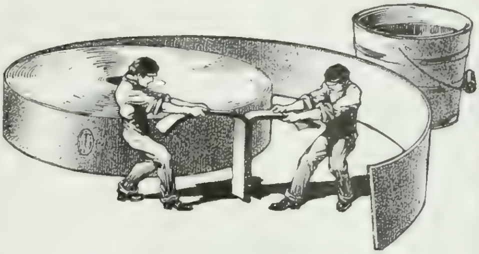

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It is not enough for us to know that Condor Belt ***ought to be*** the most efficient and permanently satisfactory belt made. We are not satisfied because the duck we use is made exclusively for us, under certain rigid specifications. We don't rest easy because Condor "friction" was perfect last year, or the year before that.

We do not assume that everything is all right — we prove it. And then we prove it all over again.

All materials used in Condor are tested. These tests are made every day. They cover all the elements which enter into Condor Belt. They follow every belt until the moment it leaves our hands.

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No. 902 Farmers Bank Bldg., Pittsburg, Pa.
No. 508 Mills Bldg., El Paso, Texas
No. 115 North 2nd Street, St. Louis, Mo.
No. 13 West Pratt Street, Baltimore, Md.

COOLING ROLLS ON PAPER MACHINES.

Discussing the question whether to damp the paper on the machine before reeling or afterward on a special damping machine, a contributor to "Wochenblatt fur Papierfabrikation" strongly contends that the damping on the paper machine can be done quite satisfactorily provided proper arrangements are to hand. On most German paper machines the paper is slit on leaving the machine and is reeled up on spar drums. If the distance between the slitting knives and the reeling drums be too great the tension cannot be kept sufficiently taut, and in such cases damping on the machine is liable to cause the reels to run askew. This, however, is no argument against damping on the machine, since it is easily remedied by proper regulation of the distances. No doubt a separate damping machine possesses certain advantages, especially for fine papers, but uniform working, followed by uniform glazing, can only be insured if the reels of paper have been thoroughly cooled before damping. If the paper is still warm the moisture is absorbed irregularly, and trouble is likely to arise just as much as if the damping were done on the paper machine. However carefully the paper machine be attended, it is never possible to dry a reel of paper evenly; there are innumerable stages between the conditions of "just dry," "hot dry," and "over-baked," which cause irregularities in damping unless the paper be first cooled. For instance, when a break occurs, cylinders become overheated unless the steam is turned off at the same moment.

The trouble and expense of a special damping machine may quite well be avoided, but only if the paper machine be provided with a large and efficient cooling roll, so that the paper may be cooled before damping. Improvements in the design of cooling rolls have not kept pace with improvements in paper machines of recent years and their increased speeds. Many paper machines are run without any cooling roll at all, while in others the cooling surface is altogether inadequate, being provided by a roll 10 to 16 inches in diameter, with which the paper comes in contact over only one-half or two-thirds of its circumference. Such rolls cannot possibly cool the paper sufficiently to insure the moisture of the damper being evenly distributed, and they are a fertile source of trouble owing to the paper sticking to the surface and winding round the roll. The writer gives his views as to what a properly constructed cooling roll should be in order that its presence should prove a real benefit to the manufacturer. It should have a diameter of at least 39 to 46 inches and should be constructed of cast iron with a shell of copper. It is absolutely essential on fast machines that a doctor should be fitted to prevent the paper winding round the cylinder, and a plain copper shell without a cast iron support will not stand the pressure of a doctor. A sufficient flow of cold water inside must be provided, and the paper should be pressed in contact with the cylinder by means of a woollen felt. Some mills have so far recognized the importance of cooling the paper that they have fitted up the last drying cylinder as a cooling roll, supplying it with cold water instead of with steam.

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Wood Pulp
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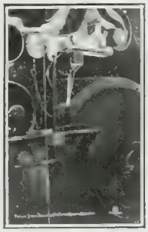

Saves steam

It also retains the proper amount of moisture in the paper thus illiminating the breaks at the calenders.

This regulator gives you a higher and more uniform finished paper with less calendering.

W. F. PICKLES
BUCKLAND CONN.

NO TARIFF INCREASE.

The Toronto News, a Conservative newspaper very close to Mr. Borden and Mr. White, makes an unqualified statement in an editorial that no increase in the tariff is contemplated by the Borden Government. The Borden Government hopes yet to make the duties more favorable than they are at present to the products of Great Britain and other parts of the British Empire—but in return for reciprocal trade preferences in their markets. By this means two objects will be attained. We shall be treating the members of our own family better than strangers, and we shall be adding a fresh bond of interest to the ties of sentiment which already bind the differents parts of the Empire together."

The fire loss in Canada for the year 1912 amounted approximately to $23,000,000 or a per capita loss of $3.07. To this must be added a per capita cost of maintaining fire brigades, of $1.25, making a total tax of $4.32 per capita. The number of lives lost as a direct consequence of fire amounted to 203 for the same period.

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THE GRINDING OF SPRUCE FOR MECHANICAL PULP

The commercial manufacture of ground-wood pulp is generally not conducted according to any fixed standards of practice. Each superintendent or manager has his own theories about the method of grinding. As a result, scarcely any two mills operate under the same conditions, even when grinding the same species and turning out similar products. For example, one mill producing news paper has 15 grinders, to each of which is applied 135 horsepower; the pressure computed to the basis of a 14-inch cylinder is 17.5 pounds per square inch, and the peripheral speed of the stone is 2,660 feet per minute. In another mill, also producing news paper, each of the 16 grinders has 625 horsepower applied to it and uses a pressure of 72 pounds on a 14-inch cylinder and a peripheral speed of 3,540 feet. A variation of from 135 to 625 horsepower to the grinders is seen in the example cited. While these two mills also show much variation in other conditions of grinding, they do not show the extreme conditions where the pressure applied to the wood in grinding varies, from 17.5 to 115.8 pounds on a 14-inch cylinder, and the peripheral speed of the stone from 1,360 to 4,310 feet per minute. The variation in pressure per square inch of pocket area would be more significant, but the data on which to base this computation is not available.

The reports of power consumption show a range of from 31 to 125 horsepower per ton in 24 hours. Very few mills, however, are able to determine accurately the amount of power consumed in the production of a ton of pulp, for the grinders are nearly always either geared or direct-connected to water wheels or turbines. When turbines are new it is possible to calculate approximately the amount of power produced, but as they become old their efficiency decreases, and it is impossible to calculate the power with any degree of accuracy.

In view of the extreme variation in the conditions of manufacturing mechanical pulp it is probable that some of the mills are operating under conditions of low efficiency. Approximately the same degree of efficiency may be reached by different combinations of the several variable factors, consistent combinations of these factors do not prevail in the industry.

The cost of producing mechanical pulp from spruce must necessarily increase with the cost of the wood. In order to cut down the price of mechanical pulp, therefore, it is necessary either to substitute a cheaper wood for spruce or to increase the efficiency of converting spruce into pulp. Coniferous woods are enough alike to warrant grinding them under approximately similar conditions, and the results of the grinding tests on spruce should be applicable to the production of mechanical pulp from other conifers. The study of spruce, however, is of value not only in establishing relations and standards by which to compare the results of tests of proposed substitutes, but also in developing methods on increasing the efficiency of grinding spruce itself.

The most important factors which enter into the production of mechanical pulp from any species of wood are:

(1) Surface of stone; whether rough or smooth, sharp or dull, or of coarse or fine grit.

(2) Pressure with which the wood is forced upon the revolving pulpstone.

(3) Peripheral speed of the stone.

(4) Temperature of grinding and thickness of stock in the grinder pit.

(5) Physical condition of the wood.

As a result of operating under different combinations of these factors, certain other factors are developed which are influenced by the variation of these upon:

(1) Power applied to the grinder.

(2) Amount of pulp produced in 24 hours.

(3) Power consumption per ton of pulp in 24 hours.

(4) Yield of pulp and screenings per cord of wood ground.

(5) Quality of the pulp.

An elaborate series of experiments was recently completed on this work by Mr. J. H. Thickens at the Wausau laboratory of the American Forest Products laboratories. The results of his work on spruce, which are published in another column of this issue, give the most elaborate, accurate, and valuable information which has ever been published on the subject of ground wood. The matter has been thoroughly investigated and all of the fundamental variables accurately studied, and their effect on each factor in the grinding has been determined. All of the work was conducted on commercial machines, so that the results can be depended on as being practicable in common practice. The equipment was mainly supplied by the American Paper and Pulp Association, under whose advice much of the work was conducted, so that everything has been done in accord with the best commercial practice. The quality of all raw material as well as the pulp was accurately determined during the entire series of experiments. Many thousands of tests have been checked up time and again to verify the results which have been obtained. In publishing these results with the report of Mr. Thickens we commend them most heartily to our readers as the most valuable contribution to scientific knowledge on the subject of groundwood pulp which has yet appeared.

TECHNICAL EDUCATION IN PULP AND PAPER

The recent work of the Technical Education Commission, appointed by the Dominion Government, has been a most exhaustive study of the needs of technical education in Canada. In this issue we carry an admirable summary of their preliminary work by F. H. Sexton. The complete report has not yet been published but the advance preliminary report shows us how thorough has been the work of the commission and how conscientiously they have investigated the composite and intricate problems of meeting the needs of technical education in Canada. Other developments have drawn the attention of the pulp and paper men to their needs for consideration and assistance. The Canadian Govenment has now established in Montreal the forest products laboratories, which will conduct investigations of an elaborate nature into all our forest products with a view to minimizing waste, seeking more efficient methods of manufacture, and developing new uses for our poorer grades of wood which at present are unavailable for economic production.

The Forestry Service of the American Government has conducted such a laboratory for a number of years at Madison, Wis., where they have worked to some extent in conjunction with the University of Wisconsin. The marked success of this work conducted by our southern neighbor has been the chief factor in the decision of our Government to undertake like work.

It is also well known that the Province of Quebec has developed and has under operation a most efficient and effective system of trade schools, chiefly in Montreal and Quebec, both in the English and French languages. Now it so happens that the magnificent buildings of the new technical school in Montreal, on Sherbrook Street, are removed only a few blocks from the location of the Government's forest products laboratories which will be conducted in conjunction with McGill University.

It has been frequently urged by a number of men interested in pulp and paper that some steps should be taken by these technical schools in Montreal. Now the time seems most opportune for an advance in this regard. All three factors, the work of the Technical Education Commission, the establishment of the Government's pulp and paper laboratories, and the development of Sir Lomer Gouin's system of technical education should contribute, to make this much wished for step most easily possible.

Now every pulp and paper manufacturer or any interested in this manufacturing industry must agree that the need for such industrial training is most acute. All of our mills are experiencing difficulty in providing themselves with help of a skilled character, and find that such help is usually imported from England or the United States. There is no better opening in any trade for the young men of our country than to learn and master the practical and technical side of paper manufacture.

A number of our mills are indebted to the Manchester School of Technology, at Manchester, England, for a number of their men; others who can not find men from this or other sources available have to do without and operate on a less efficient basis. This is one of Canada's largest and certainly Canada's most rapidly expanding industry which necessitates a large supply of skilled labor and wide awake men. The result has been that important positions throughout the mills have been held by inexperienced and unqualified persons for the reason that the supply is so inadequate to meet the demands in the ordinary methods of promotion. A trade school located in Montreal would be of valuable assistance in supplying boys and young men with some idea of the technical side of pulp and paper manufacture and make our industry that much more efficient.

We hope that all the influence which our industries have at their command will be brought to bear in securing such a school.

PULP AND PAPER MANUFACTURING IN BRITISH COLUMBIA

That the Province of British Columbia is a coming factor in the pulp and paper manufacturing field in Canada is clearly pointed out in an article appearing in this issue. The industry, so far, has received but very little notice in the Province and this in spite of the fact that exceptional advantages are offered on every hand. Besides the unlimited forest resources and wonderful water powers in practically every district, the Province of British Columbia offers other advantages that should appeal to an industry of this kind. Its proximity to the Prairie Provinces of the West is surely a great factor and the excellent shipping facilities provided at Vancouver for shipments to the far East and in fact to the United States, offer advantages to the pulp and paper manufacturer that cannot be secured in any other part of the Dominion.

It is hard to ascribe the apparent laxity in the development of the industry to any specifiic causes. As pointed out in the article, those concerns that have gone about the business in a practical manner have been successful and whether the lack of attention applied to the industry is due to something lacking in the human element, or the prevalence of fraudulent company promotion, as pointed out by the writer, is a question. It is, however, certain that the opportunities offered by this Province will be taken advantage of sooner or later, so that we think it behoves those interested in the industry in a practical manner, to give this Province careful consideration as a possible field for pulp and paper endeavor.

NEED FOR UNITED ACTION

A long standing grievance has been felt keenly by many paper manufacturers in Canada in connection with the entrance of papers of foreign manufacture which have undergone two processes of manufacture. All such papers carry a duty of 35% ad volorem owing however to a misconstruction of the classification under which they are entered much of such papers have entered at 25%.

An instance in case is perforated and crepe tissues which have been entered in large quantities at the lower classification. Now it is no argument to say that because the creping machine or perforating machine have been placed in line with the paper machine the process is continuous.

Similarly, much plated and linen finish paper has enjoyed a similar misconstruction. The fine paper and specialties manufactured in this country need considerable protection, and while 35% is ample for any industry, these grades mentioned need all that. No industry which cannot thrive in a protection of 35% has any excuse for existance, but it is not right that one needing assistance at the present time more than any others in the paper industry should suffer by a loop-hole in the tariff.

Recently the Canadian Manufacturers' Association offered to assist the government in securing qualified men to assist the appraisers in all difficult lines such as paper. This suggestion was at first warmly received but later interfered with party politics and was dropped.

The paper industry in Canada suffers perhaps more than any other from custom officials not knowing the methods of manufacture and being able to discriminate between two and one process paper or such a distinction, as between grades of coated and super-calandered. United action in this connection is urgently needed.

EDITORIAL COMMENT

Considerable attention is being given to parts of British Columbia to the investigation of the possibilities of Douglas Fir. We refer not so much to its usefulness for structural purposes as to the value of its by-products. Among these may be cited creosote, turpentine, pyroligneous acid, etc. It is estimated by those interested that one cord of Douglas Fir will produce 30 gallons of creosote and 40 bushels of charcoal. Its various products are in good demand in the regular markets. We are informed that samples of the wood for experimental purposes have been sent to Wilmington Del. and Lake Butler Fla. to have tests made. The results have not yet been made public.

THE GRINDING OF SPRUCE FOR MECHANICAL PULP*

By J. H. THICKENS

Chief Engineer in Forest Products

The condition of the surface of the stone depends upon several factors. The size and sharpness of the individual particles of grit, the ease with which the binding material is worn away, and the manner of dressing the stone are important. In these tests but one stone was used, and variations in its surface were obtained by working it with steel rolls of different design.

The size and sharpness of grit should be given considerable attention, although this was not done in the work described. The indications are, however, that stones of fine grit are capable of producing more finely ground pulps, and that a stone of extremely coarse grit may produce very shivy pulp.

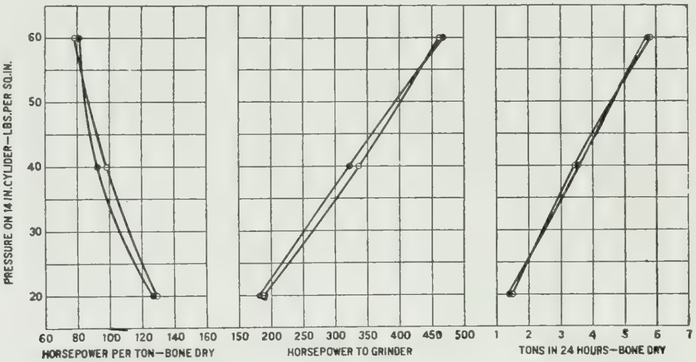

Fig. 1.—Similarity of test values on duplicate runs

Commercially a great deal of attention has been given to the design of burrs or bush rolls. It appears, however, that practically the same quality of pulp can be obtained under like conditions of pressure, speed, and temperature if the surface of the stone is brought to the same condition of sharpness of grit, irrespective of whether the design of the markings is diamond point, straight cut, or spiral. The purpose of the depressions in the stone is primarily to provide a path by which the ground wood can leave it. It is possible that burrs of certain design will give a greater amount of grinding surface than others, and that the production will in this way be slightly increased.

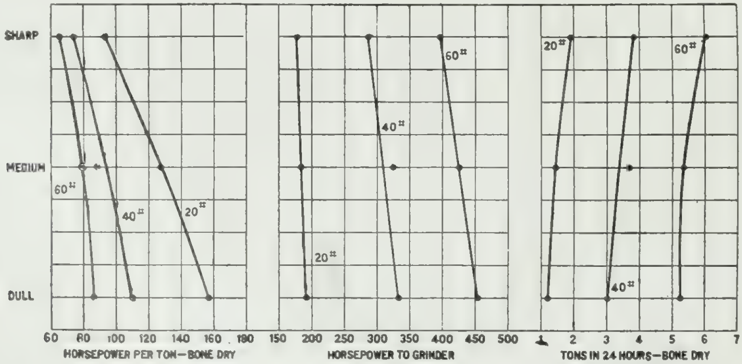

Fig. 2.—Relation of power consumption and rate of production to sharpness of stone, at 17 m.

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* Reprinted from a bulletin of the Forest Products Laboratory of the United States Forest Service.

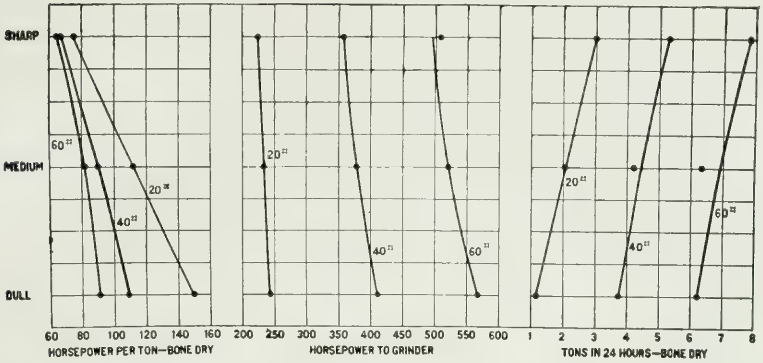

Fig. 3—Relation of power consumption and rate of production to sharpness of stone, at 225 r. p. m.

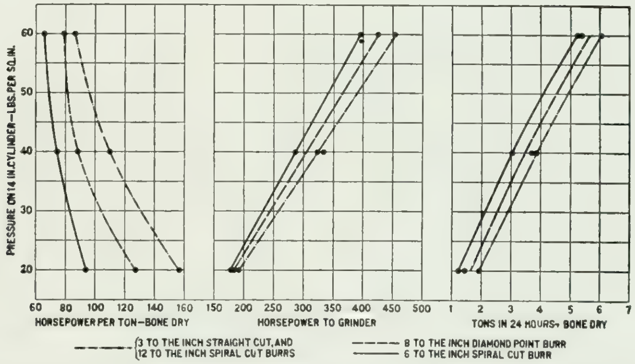

Fig. 4.—Relation of power consumption and rate of production to pressure at 175 r. p. m.

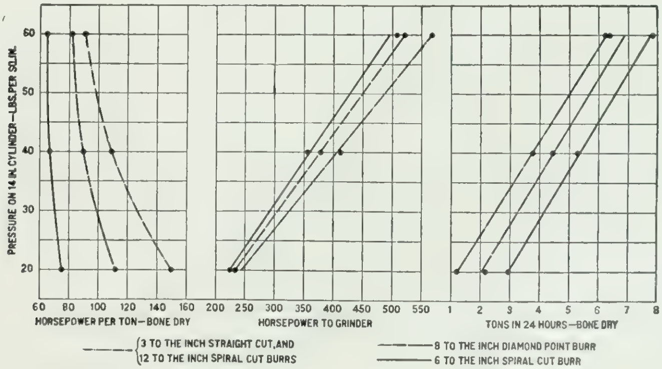

Fig. 5.—Relation of power consumption and rate of production to pressure at 225 r. p. m.

Figs. A, B, C, and D, show some of the bush rolls used in surfacing the stone for runs. The surface obtained by burring with the rolls shown in Figs. A and B seemed to give more satisfactory results than any other thus far tried. The stone was first dressed with a 3-to-the-inch roll, and depressions were formed from one thirty-second to one-sixteenth of an inch deep. The stone was then rolled with a 12-to-the-inch spiral-cut burr until the spiral markings were plainly discernible. It is not at all essential that a spiral burr be used; any finely cut burr will give approximately the same results, the idea being, of course, to raise the grit of the stone. This is best done with a burr approaching the grit of the pulp stone in fineness.

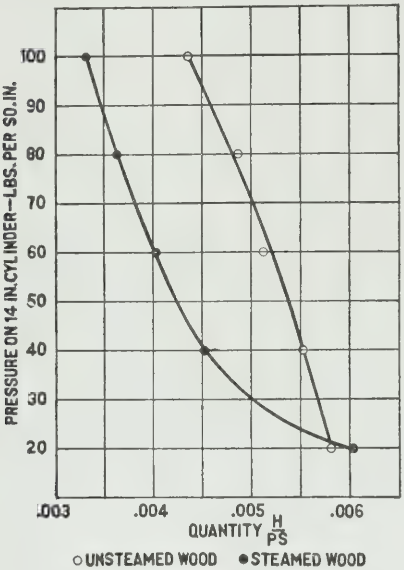

Fig. 6 Relation of quantity $\frac{H}{PS}$ to pressure

The important thing, so far as quality is concerned, is to give the particles of grit the correct treatment, rather than to form a deeply-grooved surface on the stone. An artificial pulp stone so constructed that the binding material, although standing up under high temperature and high pressure, would wear away a little more rapidly than the grit, thus continually exposing new and sharp particles of grit for grinding, would be of immense value to the industry

Influence on Power Consumption and Rate of Production.

Figure 2 shows, by curves obtained at pressures of 20, 40, and 60 pounds, the relation of three different surfaces of stone to the power consumption per ton, power to the grinder, and production in 24 hours. The horsepower per ton and the power to the grinder vary inversely with the degree of sharpness of the pulpstone, while the production varies directly with the sharpness. It is of particular interest to note that the curves apparently come together at a point representing approximately 50 horsepower per ton. This indicates that it is impossible, with the apparatus used, to produce pulp with less than 50 horsepower per ton in 24 hours, no matter what pressure or degree of sharpness is employed. When a low pressure is used, the influence of the condition of the stone on the horsepower consumption per ton is more marked than when higher pressure is ap-

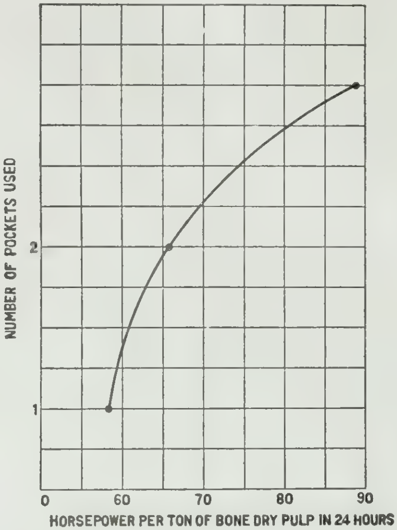

Fig. 8. Relation of power consumption to number of pockets used at 225 r. p. m., 330 horsepower to grinder

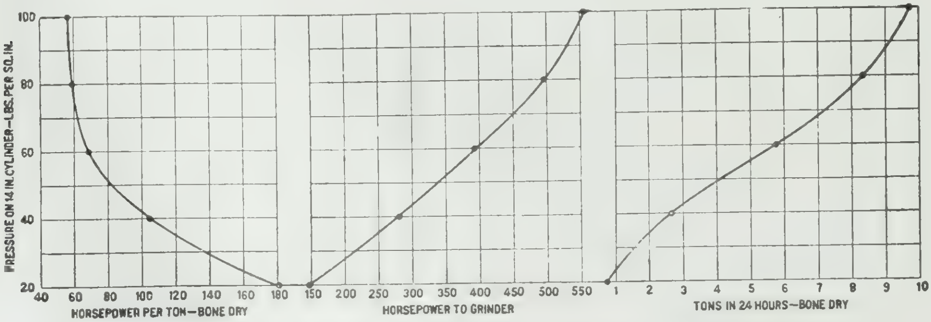

Fig. 7. Relation of Power consumption and rate of production to pressure at 225 r. p. m., 2 pockets

plied. This is not the case with the consumption of power on the grinder and the production in 24 hours, which are affected by the surface of the stone to about the same extent at high and low pressures.

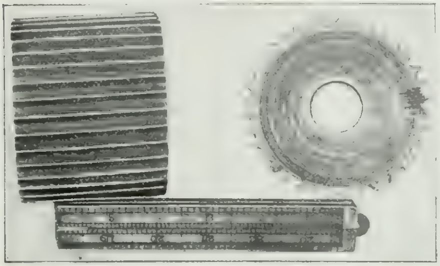

Fig. A.—Straight-cut Burr, three to the inch

Figure 3 is a series of curves similar to those shown in figure 1, except that they were obtained at a speed of 225 revolutions per minute instead of 175 revolutions. The same general characteristics appear in this series as in the other. It is again evident that the curves showing the relation between sharpness of stone and power consumption converge at a point which has a value of approximately 50 horsepower per ton, the sharpness of stone being somewhat greater than the sharpest condition under which the tests were carried on.

Figures E. and F. are a reproduction of the surfaces of stone used in a number of tests. Figure E shows the surface before any grinding had been done, and figure F shows the same surface after 12.5 tons of pulp had been ground under various conditions of speed and pressure. In figure E the spiral markings are very distinct, while in figure F they are not as much in evidence, and at the same time the sand particles, represented by the black dots, are fewer in number. This is due to the fact that many of them have been broken or worn off. When grinding at 30 pounds pressure and 225 revolutions per minute, the rate of production for the first two hours after dressing was 3 tons of bone-dry pulp in 24 hours, and the power consumption per ton 112 horsepower. After 12.5 tons of pulp had been made and the stone had become dull the production fell to 1.89 tons in 24 hours, and the power consumption increased to 171.3 horsepower per ton for the same grinding conditions.

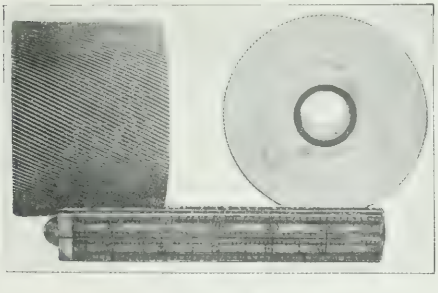

Fig. B.—Spiral-cut Burr, twelve to the inch
(Advance 1½ inches in crossing 3 inch face

Influence on Yield and Quality.

The condition of the surface of stone apparently has very little effect upon the yield per cord of wood. It is true that with extremely sharp stones more screenings are formed and possibly more fine fiber finds its way into the white water, but within reasonable limits of sharpness the yield shows little variation.

Figures G and H show two photomicrographs of pulp obtained on stones of different degrees of sharpness. In one case a consumption of 84½ horsepower per ton was necessary, while in the other only 64½ horsepower was required. The photographs indicate that a better quality of pulp is produced at the greater power consumption and lower degree of sharpness of the stone. The samples of paper made from various experimental pulps show, when tested, that paper from pulp produced by the sharper stones has less strength than that from pulp ground on duller ones.

In the tests conducted on stones sharpened so that the surface consisted of deep ridges or points and grooves, it was found that the quality of pulp produced was uniformly poor, consisting of very fine fiber intermixed with coarser particles. When a very sharp surface is used, the wood fibers are literally ground to pieces; a larger percentage of screenings is also made, although not so large as might be expected. Under such conditions the fibers are ground so short and fine that it is almost impossible to remove the lap from the wet-machine press roll.

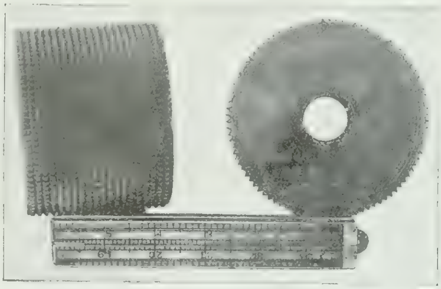

Fig. C. Diamond-point Burr, eight to the inch

Deep grooving of the surface of the stone causes more rapid production of pulp, but at the sacrifice of quality. When high power without excessive sharpness of the stone is used, the grit of the stone comes more into play. In fact, the grit of the stone, more than any other factor, in-

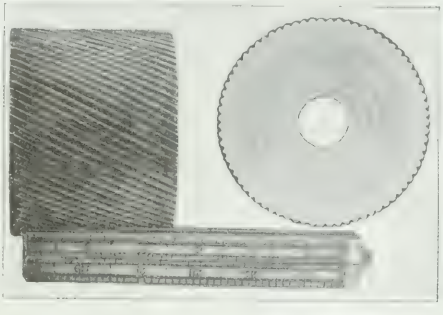

Fig. D. Spiral-cut Burr six to the inch
Advance 1 inches in crossing 3 inch face)

fluences the quality of pulp produced under conditions of high power consumption.

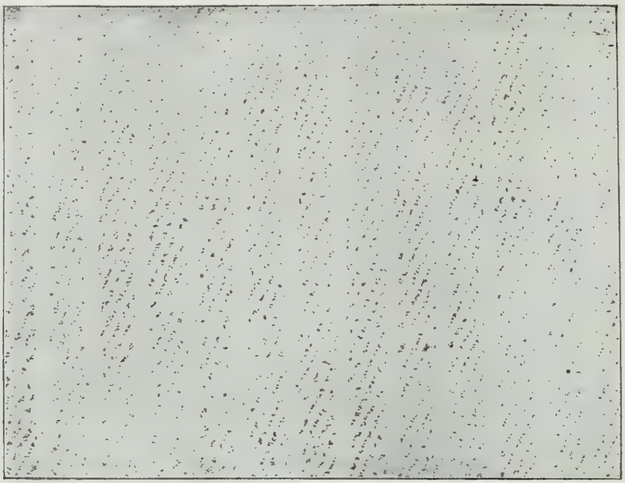

Fig. E.—Surface of Stone, freshly dressed

Pressure on Grinder Cylinders.

For any given cylinder pressure, the pressure at which the wood is forced upon the revolving grindstone varies greatly with the diameter and length of the material. Besides, the wood may bind in the pockets, and this also results in a variation of the pressure on the stone. In commercial practice the pumps supplying the water to the grinder cylinders often do not have sufficient capacity, and ,as a result, the pressure drops off each time one of the pistons is raised or lowered. In order to emilinate this effect some mills have installed triplex or centrifugal-pressure pumps which are directly connected to the grinder shaft. By this means the increased speed of the grinder brought about by raising one or more of the pistons results in increasing the speed of the pump, thus raising the pressure on the other cylinders of the grinder and reducing the speed of the stone to normal. This to some extent brings about a regulation of the speed, but causes a wide variation in the pressure. Because it is claimed that any change in the pressure re-

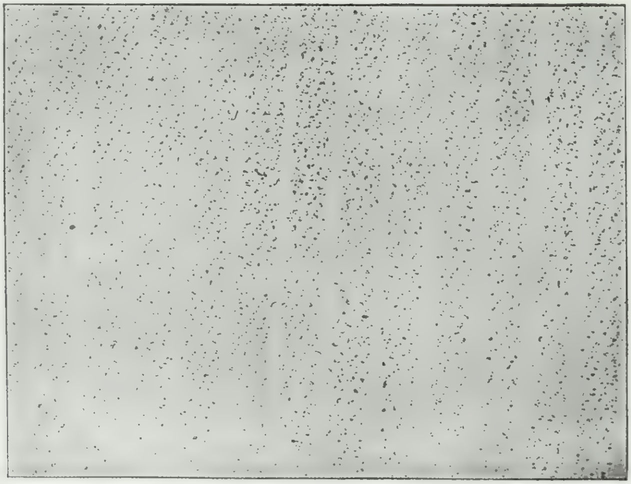

Fig. F. Surface of Stone after Production of 12.5 Tons of Pulp sults in a great change in the quality of the pulp, some manufacturers have provided their grinders with devices which are supposed to bring about uniform conditions of pressure. While it is undoubtedly true that the latter greatly influences quality, it is doubtful whether any appliance or apparatus thus far placed upon the market eliminates to a marked extent the variation of pressure of the wood on the pulpstone.

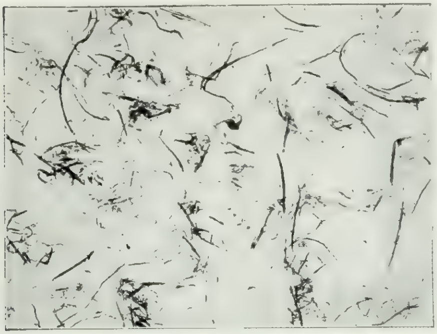

Fig. G.—Sharp Stone, 64.5 horsepower per ton
COMPARISON OF SPRUCE PULPS GROUND ON SHARP AND DULL STONES (Magnified 15 diameters)

Though in the experiments discussed in this bulletin the pressure of the wood upon the stone varied, it is reasonable to suppose that the variation due to difference of length and diameter of the wood, binding of the wood in the pockets, and similar causes, has a fairly constant range for any cylinder pressure and consequently does not affect the deductions regarding the relative influence of different cylinder pressures upon production and power consumption.

Influence on Power Consumption and Rate of Production.

Figure 4 shows the relation of the pressure on the grinder cylinder to the horsepower per ton, power to the grinder, and production in 24 hours. The three curves represent surfaces of different degrees of sharpness and are plotted from the same data as those shown in figure 2. On the sharpest stone there is a very slight decrease in the power consumption per ton with increasing pressure, and on the dullest one a marked decrease in power consumption as the pressure is raised. The power to the grinder varies directly with the pressure on the cylinders; the same is true of the production in 24 hours.

The variation of the same factors at a speed of 225 instead of 175 revolutions per minute is shown in figure 5.

The relation between pressure on the grinder cylinder and a quantity, C, derived from the formula $C = \frac{H}{PS}$ where H is the average horsepower to the grinder, P, the pressure in pounds per square inch of pocket area, and S, the peripheral speed in feet per minute, is shown in figure 6. The quantity C is proportional to the coefficient of friction of wood on the stone under the conditions of speed and pressure of the tests. There is a gradual decrease in the value of C, as the pressure of grinding is raised. The values for horsepower per ton also decrease with higher pressures, as shown on the curves between pressure and horsepower consumption. Of the two curves given in this figure, one illustrates the variation of C with pressure when steamed wood was ground, and the other when untreated wood was used.

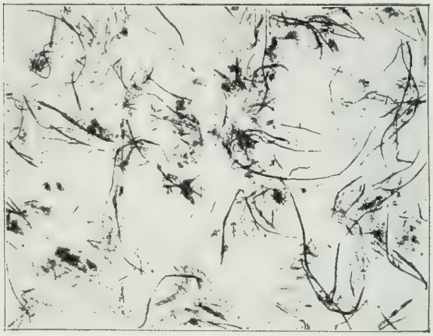

Fig. H.—Dull Stone, 84.5 horsepower per ton
COMPARISON OF SPRUCE PULPS GROUND ON SHARP AND DULL STONES (Magnified 15 diameters)

Figure 7 shows the relation of pressure on the grinder cylinders to power consumption per ton, power to the grinder, and production in 24 hours, when only two pockets on the grinder were used and the pressure was raised very high.

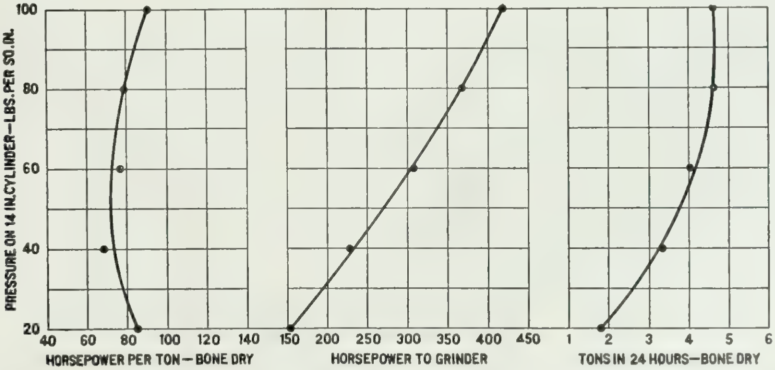

Fig. 9. Relation of power consumption and rate of production to pressure at 225 r. p. m., 2 pockets, steamed wood

The decrease in power consumption with increase in pressure is seen; the minimum value of the power consumption is approximately 55 horsepower per ton. As was shown in figures 4 and 5, the power to the grinder and production in 24 hours vary directly with the pressure on the grinder cylinder. It is interesting to note that under the same conditions of speed and surface of stone the horsepower to the grinder would be approximately 275 and the production 3 tons of bone-dry pulp in 24 hours if 40 pounds pressure were used, while if the pressure were raised to 100 pounds per square inch the horsepower required by the grinder would be doubled, but the production in 24 hours would be more than trebled.

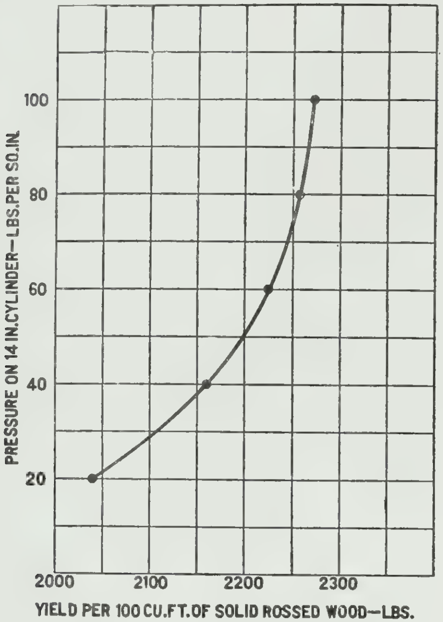

Fig. 10. Relation of yield to pressure 225 r. p. m., 2 pockets

Figure 8 shows the relation between the number of pockets used and the horsepower consumption per ton of pulp. In this test the power to the grinder and the speed were maintained constant; the power was utilized by varying the grinder pressure according to the number of pockets used. When using one pocket and a presusre of 120 pounds per square inch the consumption per ton was 58 horsepower, while with three pockets and a pressure of 36½ pounds the power consumption per ton was approximately 89 horsepower. This is only another way of demonstrating that the power consumption per ton of pulp in 24 hours is much lower under conditions of high pressure of grinding than under conditions of low pressure. This test is of interest to manufacturers, because it suggests that by using a smaller number of pockets they can procure a larger quantity of pulp during times of low water without sharpening the stone to an unusual degree.

The relation of pressure on the grinder cylinder to horsepower per ton, horsepower to the grinder, and production in 24 hours when the wood was steamed prior to grinding is shown in figure 9. In this case the pressure has not nearly so marked an effect upon the various factors as it had in the tests shown in figure 7. The wood was steamed for a period of six hours at 60 pounds pressure, and two pockets were used in the grinding.

Influence on Yield and Quality.

Figure 10, which shows the relation between yield per hundred cubic feet of solid rossed wood and the pressure on the grinder cylinder, indicates that with increasing pressure the yield of pulp increases. Although the amount of screenings also increases, there is a gain in the yield of screened pulp at high pressure, due to the smaller quantity of pulp in the white water. The increase was approximately 11.5 per cent. in the tests on which this figure is based.

The effect of pressure on the quality of pulp, as indicated by the strength of the paper, is shown by figure 11. The strength factor, or the bursting strength per square inch divided by the weight per ream, decreases with increasing pressure. The decrease in the strength of the paper with the power consumed in making a ton of pulp is also shown.

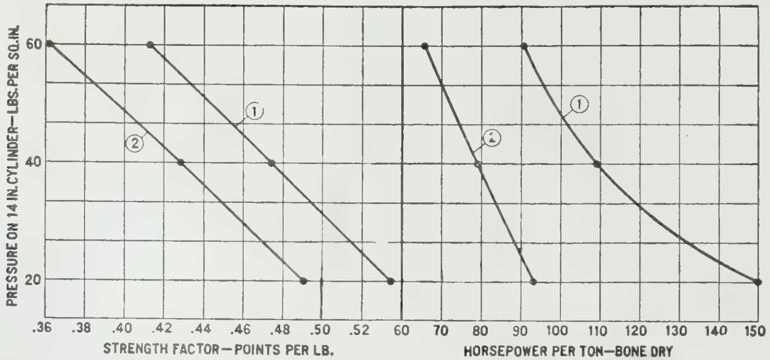

Fig. 11. Relation of strength of paper and power consumption to pressure at 175 r. p. m. (1) and 225 r. p. m. (2)

PULP AND PAPER MANUFACTURING IN BRITISH COLUMBIA

By F. PAGE WILSON

The Pacific province is in the anamalous position of possessing wonderful resources for the manufacture of pulp and paper and yet presenting a very disappointing front to those looking for actual achievement in that industry. We are now of course speaking in general terms and not with any view to disparagement of the one or two progressive concerns who have solved their problems successfully and with satisfactory dividend returns to their shareholders.

A newcomer's first glance, on arriving in British Columbia, assures him of its wonderful wealth in forest growth, much of it adopted to the manufacture of high-class pulp. The fineness of its trees is the most striking feature of the landscape in many large districts. This applies not only to such gigantic growths as the Douglas fir, which with a diaameter of sometimes considerably over twelve or fifteen feet reaches a height of 300 feet; and which we would not mention in connection with the pulp manufacturing industry were it not that some prominent authorities, including Prof. J. M. Macoun, Dominion Naturalist believe it has a great future for this purpose. Another point which gives peculiar interest to the Douglas fir is the fact that it is found largely on the coast, and near good transportation facilities, and while it does not enter into present-day pulp manufacture, yet it is used largely for structural purposes in which there is considerable waste. As time goes on and the need for great economy in the utilization of all resources in the way of raw material makes itself felt, openings will likely present themselves for the using up of this waste in the shape of stubs and butts and branches for pulp making.

The same remarks apply closely to the Sitka Spruce, which is abundant from the southern border of British Columbia up to Alaska, changing from an appearance in isolated clumps in the south up to solid forests in the northern districts. As a pulping wood it is unexcelled. Next to Sitka Spruce, the best of the British Columbia wood for pulp manufacturing purposes is the "Western" hemlock, found practically throughout the province wherever there is sufficient rainfall.

The Aspen poplar is another tree valuable for pulp making and found in most parts of the province, especially throughout the northern part of the interior.

Various varieties of balsams and other trees also, may be added to the list of British Columbia's resources in the line of raw material for pulp and paper manufacture.

There is no question as to the quality of the wood mainly used for this purpose. In fact it is said by some of the spruce found in such large quantities throughout the Pacific Province that it is the best adapted wood existing on the continent, and better than the Norwegian tree of the same species for the same purpose. Moreover a large number of the best treed localities are situated in close proximity to good water transportation and in some cases also adjacent to fine water powers. So there is no question as to the great possibilities presented by the province for the establishment of high-grade and profitable pulp and paper mills.

In addition to these general advantages may be mentioned the mildness of the climate which facilitates carrying on operations during every month of the year. Geographical location also is another point which should tell in favor of British Columbia. For instance, there is a heavy demand for paper in Australia, a country in which material for pulp making is practically non-existent. In China and Japan too the demand is constantly increasing. Locally there is a fair and constantly increasing demand for news print and the same may be said of the prairie provinces in which the number of new towns, each with its own one or more local newspapers, is growing every year. Another point which may be mentioned is that in the best pulp-wood producing districts of the province—and these are legion, and well situated in regard to proximity to navigable streams going down to the coast, the density of good pulping trees is usually considerably greater than in the best sections of the East. It is said that 500 cords is by no means uncommon as the production of an acre in a good section, but from 100 to 150 cords is the usual rule.

Yet in spite of all these advantages which on the surface should help to make British Columbia par excellence the greatest pulp manufacturing region on the continent, it has to be admitted as mentioned above, that this province has not improved upon its reputation during the last few years.

It will be remembered that about twelve years ago, the British Columbia Government, in order to encourage the paper-making industry announced that it would grant pulp-wood area leases for twenty-one years to bona-fide companies who would establish mills. This law was repealed a year or two later, but in the meantime several companies were formed to take advantage of the concessions and between them they took over the development of something over 350,000 acres of land . They had to pay, under the leases, 2c per acre besides a royalty of 25c for each cord of pulp-wood which they cut. In return, each of the companies had to build, equip and operate a mill having a daily output of not less than one ton of pulp or half a ton of paper for each square mile of timber land included in its concession.

One of the most important of those companies, and the one which has probably done most to demonstrate the feasibility of manufacturing pulp and paper in British Columbia successfully on a large scale is the Powell River Company, Ltd., Powell River, B. C., which now has one of the finest and largest plants in America. It started operations in paper early last year, but has since that time doubled its mill equipment and more than doubled its output. The plant now comprises two 186 inch Fourdriniers, also one 150 inches wide and another 158 inches, all by Pusey and Jones. This gives the mill acapacity of 240 tons of news-print daily. It also makes wrappers. The beater room was recently equipped with mixing tanks, replacing five beaters and with four E. D. Jones & Sons' Majestic Jordans. The finishing room has all the winders, cutters and other apparatus necessary to make it one of the most up-to-date departments of its class. The ground-wood mill now has 24 grinders, some by Waterous and others by Holyoke Machine Co. the wheels being made by Platt Iron Works. The capacity is 200 tons of mechanical pulp per day. In the sulphite department, which turns out 60 tons per day and is equipped with two Manitowac digesters, the tower acid system is used, the tower being 175 ft. high. There is a splendid machine shop in connection with the mill. No question is ever heard as to the fine quality of the pulp and paper produced.

The Ocean Falls Co., Ltd., started operations in 1909 at Cousins Inlet on Fitzhugh Sound, about 350 miles north of Vancouver. It is one of the Lester David enterprises. Its equipment comprises 24 grinders, a 18 wet machine with a capacity of 150 dry tons of pulp every 24 hours. Power is derived from Link Lake, 15,000 horse-power being already developed out of a total of at least 25,000. The water is practically inexhaustible, the lake being surrounded by mountains of considerable height and covered at their peaks by perennial snow. From the lake issues a river which has a natural fall of 120 ft. within its short length of two or three miles. Reservoirs have been built, besides which the natural rainfall of the country, which is said to be no less than 200 inches annually, makes exhaustion of water-power an impossibility. Fine areas of spruce wood are within easy reach of the plant, the trees being of fine quality and much larger than those which have to be used in most eastern pulp districts. The buildings and equipment are of the best. The plant has been closed down for some time on account of financial re-organization.

The Swanson Bay Forests, Wood Pulp and Lumber Mills, Ltd., has a good plant capable of turning out 25 tons of sulphite pulp every 24 hours. It shipped most of its product to Japan, but is at present out of business.

The British Columbia Sulphite Fibre Co. has a plant at Mill Creek on Howe Sound, about 30 miles from Vancouver. The mill, which is admirably located, is equipped with one 112 inch Fourdrinier machine. It turns out Mitscherlick sulphite pulp, also sulphite building paper. The capacity is about 40 tons daily. About 8000 horse-power have been developed from the Rainy River. The company owns about 55,000 acres of valuable timber limits in the Quatsino district, said to comprise two billion feet of good timber. Connected with these limits there is a water-power capable of developing 25,000 horse-power additional. The mill, we understand, is running to full capacity.

The Western Paper Mills, Ltd., New Westminster, make wrapping, building and roofing paper, box-board, felt and carpet lining, with a capacity for 20 tons every 24 hours. The mill is equipped with 5 beating and 3 Jordan engine, with one 90 inch cylinder. Electricity is the power used. The managing director is Mr. P. N. Smith. The company has been in liquidation for some time past.

The above represent practically the entire list of British Columbia's pulp and paper plants in more or less active operation. Many other companies have been talked of, and several actually promoted, but for one reason or another, have not become tangible producing propositions. In this face of the extraordinary good natural advantages presented by this province for this particular industry, the reason would appear to lie in something lacking in the human element, which is undoubtedly just as important as these elements presented by nature.

The trouble probably lies in the fact that where the natural advantages presented by any section are good, they are frequently used as talking points by those desiring to enter the industry on other people's capital, and without any native knowledge of the requirements of the industry on their own part. In other words, where conditions facilitate the creating of a "boom" in any branch of commerce or industry, that is precisely where the born promoter and stock jobber get in their fine work. Eastern Canada has not been entirely free from this sort of thing during the past year or two. We believe after considerable investigation that this has been the fatal case with British Columbia's pulp and paper industry—and in an aggravated form, largely owing to the very abundance of its natural resources.

These conditions are not bound to continue indefinitely. Indeed, it may be said that almost every country and every industry has passed through a similar period of unrest and failure. The solid foundation comes later, when the industry falls into the hands of men who know not only how to present its possibilities to the public from a financial point of view, but how to locate it in relation to timber limits, water-power, shipping facilities, and not least, how to manage it as a commercial proposition requiring intimate acquaintance with the details of the market in every respect.

The one or two successfully worked propositions in British Columbia to-day prove to the full that such a combination is not impossible and give a promising indication that it will not be long before the province shall enter in earnest upon the fulfilment of its undoubted high destiny in the pulp and paper field.

U. S. TIMBER WASTE.

The United States as a nation has existed over a century and a quarter. In that time about 35 per cent. of the original forest mantle has been consumed. Of the remaining 65 per cent., about one-fifth is owned publicly, and about four-fifths privately. The consumption of the forest is due to two causes—use and waste. Experts say that at the present time 23,000,000,000 cubic feet of timber are being taken every year from the forests. The value of this timber when converted into lumber, shingles, laths, posts, poles, fence rails, railroad ties, staves, barrel hoops and headings, mine timber and firewood, is estimated at $1,280,000,000. Of this, three-fifths is in the form of lumber, shingles and laths, and about one-fifth firewood.

The waste of timber is shocking. Careless logging methods destroy one-fourth. There is great waste in stumpage by cutting the trees too high and leaving the stumps to rot. Young trees are not protected from falling timber. Large limbs are left to waste. Immature and seed trees are cut. On the national forests, where modern methods of scientific forestry are practised, this waste of 25 per cent. is reduced to 10 per cent. or less.

The three-fourths of the tree left by the loggers goes to the mill, where the loss runs from 30 to 60 per cent. If we take the lowest estimate of this mill waste, only one-half of the original timber in the woods leaves the mill as lumber. In other words, the logging loss is one-quarter of the standing timber, the mill loss another quarter, and only one-half is used.

At the factory there is further a loss of one-fourth of what came from the mill. This leaves only three-eights of the original wood in the forest which is finally converted into useful articles—furniture, building materials and so on. And it must be remembered that it is three-eights of the merchantable wood that remains; kindling wood and scraps are not counted. Thus OVER ONE-HALF OF THE STANDING TIMBER IS WASTED in the course of logging, milling and manufacturing.

Margolin estimates the loss in milling as follows:

	Per cent. of volume of log.
Bark	13.0
Kerf, or sawdust	13.5
Edging and trimming	8.7
Slabs	8.7
Careless manufacture and accidents	3.5
Requiring standard length and widths	1.7
Total loss from all sources in the mill	49.1

The waste could be materially lessened. If thin band gang saws were used instead of the thick bands, the loss of volume due to sawdust would be reduced. The market requirements and usages should be modified so as to use odd lengths and short lengths for various purposes. More careful methods in edging and trimming would eliminate much waste. The utilization of by-products, such as chemical products, sawdust and wood pulp from wood now wasted, would conserve the life of the forests for the use of future generations.

TECHNICAL EDUCATION REPORT*

By F. H. SEXTON

(Director of Technical Education in Nova Scotia)

Just before the prorogation of the last session of Parliament the Royal Commission on Industrial Training and Technical Education tabled its report with the finding of three years of investigation. It is to be hoped that the people of this country have not lost sight of the necessity for adequate industrial education in Canada while the Commission have been conducting its prolonged and thorough investigation. It will be remembered that the Commission spent nearly a year in ascertaining the needs in this direction throughout the Dominion. It then proceeded to foreign countries where exceptional facilities were placed at their disposal for the investigation of the systems of industrial training and technical education in their complete and advanced phases. The whole report is not yet available but the summary which has appeared gives promise of being perhaps the most careful and comprehensive treatment of modern systems of technical education which has appeared in recent years.

The Commission found that the public school has not kept pace with the rapidly changing social and industrial conditions. There is everywhere an insistent demand that the school shall meet the larger duties which modern civilization has thrown upon it. Education must be given a vocational aim and purpose if the best interests of the individual and state are to be conserved. The factory system of production necessitates that many persons shall be subjected to the deadening task of tending automatically or partly automatic machinery. Such workers should receive such instruction and training as will develop their knowledge and interests, prevent these people from becoming like the machines which they serve, and make them happy, intelligent citizens.

"Such training should be provided as will conserve and develop occupations wherein skilled handicraft is required, this for the sake of the workers, as well as for the quality and character of products."

"The interests of the rural population should be conserved and promoted as far as possible by Industrial Training and Technical Education suitable for the needs of its workers."

"The needs of girls and women for organized instruction and training in the elements of the sciences and arts, which underlie successful housekeeping and home-making under modern industrial conditions, should be recognized and provided for."

"Increasing attention should be given to opportunities, which now exist or which may be provided, for the conservation of life and health and for the development of human powers to the end that individuals generally may attain happiness and contentment through intelligent labour in Canada."

Such are some of the illuminating general conclusions of the Commission after three years of close study and careful consideration. The significant statements are made that Canada is behind the times in provisions for industrial education and that the most advanced countries in this respect are rapidly increasing their facilities because they seem least satisfied with what they have already accomplished.

The Commission recommends that provision be made for increased facilities in industrial training and technical education under three headings as follows:—

Those who are to Continue at School in Urban Communities.

I.—Intermediate industrial classes (or schools).
II.—Co-ordintaed technical classes (or schools).
III.—Technical High Schools.
IV.—Apprentices' schools.
V.—Industrial and technical institutes.
VI.—Technical Home economics, and fine arts Colleges.

For Those Who Have Gone to Work in Urban Communities.

I.—Continuation classes (or schools).
II.—Co-ordinated technical classes (or schools).
III.—Middle Technical classes (or schools).
IV.—Apprentices' classes (or schools) in workshops.
V.—Industrial and Technical Institutes.
VI.—Correspondence-study courses.

For Rural Communities.

I.—Intermediate rural classes (or schools).
II.—Rural high schools.
III.—Continuation agricultural classes (or schools) under resident or travelling district instructors.
IV.—Continuation housekeeping classes (or schools) under resident or travelling district instructresses.
V.—County or district agricultural and housekeeping schools.
VI.—Young people's social service schools.
VII.—Schools for agricultural apprentices.
VIII.—Agricultural and home economics Colleges.
IX.—Correspondence-study courses.

This looks like an ambitious program, but the Commission considers all these provisions necessary in order that Canada shall acquire to the full measure of happiness, justice, intelligence, and good will which should prevail among our people.

The principal difficulty in launching forth into this generous scheme of industrial education is the expense. It is pointed out by the Commission that much of the work required in the modern school program was not contemplated or thought necessary at the time of Confederation when the question of education was left to the several Provinces to deal with individually. It is also true that the increments in revenue due to the recent expansion of Canada have largely gone to the Dominion Treasury, leaving the separate Provinces more or less incapable of providing for the new educational demands. Therefore, it is obviously meet and fitting that additional grants should be made from the Dominion Treasury to the separate Provinces to spend for the purpose of industrial training and technical education. The only rational basis for distribution is that of population. The chief consideration is the sum which whould be appropriated adequately for the new educational needs.

The Commission recommends that the Dominion Parliament appropriate the sum of $3,000,000.00 annually and which sum should be paid into a Dominion Development Fund. Not less than 75% of this sum should be divided into nine portions and allotted to the separate Provinces in proportion to the population, to provide for the educational undertakings which were before summarized.

In order to allow a Province a reasonable time to develop a sound system of technical education it is recommended that any sum unexpended in one year shall be placed to the credit of the Province to be expended later. Each Province is to furnish a budget of expense at the beginning of the financial year before the grant is received and is to furnish an itemized statement of expenditure of the service at the end of the year for an efficiency audit.

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* This article appeared in the August 2nd issue of the "Journal of Commerce."

Already in 1912, the Dominion Parliament authorized the expenditure of a sum of $700,000, increasing each year by $100,000, until it reached the sum of $1,100,000 to cover a period of ten years, for agricultural improvement and education. It is evidently expected that this sum would be deducted from the $3,000,000.00 recommended.

For the proper administration, audit, and development of industrial training and technical education a sane, rational and unique method of organization is suggested. It is proposed that there should be constituted in localities both Local Urban Industrial Development Boards, and Local Rural Development Boards. These should be composed of educationists and men of practical experience to advise as to the best means of furthering the development of industrial training and technical education in those localities and to administer any grants for these purposes. In each Province there should be Provincial Development Commissions and Provincial Development Councils to accomplish the same purposes for the separate Provinces.

To administer, audit, and organize the new educational system over the whole of Canada, it is recommended that a Dominion Development Commission should be appointed and that there should be a Dominion Development Conference of representatives from each Province and members of the Dominion Development Commission to consider general questions.

It is distinctly provided that each Province shall be free to spend the money granted for this purpose as it sees fit. The only control given to the central Dominion authorities is that of an efficiency audit of Provincial expenditure. Otherwise the central authorities exist only for the purpose of advice, co-operation and general promotion of efficiency.

We do not see where many objections to this great scheme can arise. Employers desire more highly skilled intelligent labor. Artisans, clerks, farmers and all those who toil with hand and brain are eager to prepare themselves more fully for their chosen vocations. Educationists are anxious to correlate the training of the young more closely to the needs and demands of modern society. There is no interference with provincial rights as they are now comprehended. It is safe to say that if these proposals of the Commission were adopted and carried into effect that the whole of the educational system of Canada would be vitalized, revivified, and brought to a state of efficiency which exists in the most advanced nations of the world. Industry and commerce would be placed on a scientific and efficient basis and within a generation Canada's people would be enjoying in a far fuller measure the national heritage which Providence and our ancestors have so generously provided. The quality of national life in this Dominion would be improved in as great a measure by an adequate and proper system of technical education as by any means within the power of the people of Canada to provide.

Hon. George E. Foster, Minister of Trade and Commerce, who has been in China and Japan sizing up the situation for trade openings, is expected home the latter part of the month. He attended the sittings of the Imperial Trade Commission in Australia and New Zealand and incidentally negotiated for a reciprocal arrangement with the former.

INTERNATIONAL FORESTRY CONGRESS

Great Gathering in Paris Last June.

This congress, to which representatives came from every continent on the Globe and which was probably the largest Forestry Congress ever held, met for the expressed purpose of studying ecomonic and technical forestry problems, and of promoting legislative and administrative reforms in order to secure the conservation of the forests, the prevention of soil erosion and the reforesting of waste lands.

Such subjects as the right of the state to regulate private forest property, or to expropriate misused and denuded forest lands to insure public safety from floods were discussed from an international view-point. This state right has long been recognized in Europe where lands on watersheds can be expropriated unless managed by the owner according to strict Government regulations and an adequate forest cover maintained. The Federal Government of the United States has also recently given expression to this right by the Weeks Bill, passed in 1911 for the acquisition of lands necessary to protect the watersheds and navigability of navigable rivers. By exerting promptness and foresight, the Dominion Government has been able to forestall private occupation of the forest areas now reserved on the east slope of the Rockies and on other important watersheds, but should the necessity arise, its legal right to expropriate private land for the public benefit, seems to be borne out by the policy followed by other countries.

A feature of striking significance in this Forestry Congress at Paris, international in representation and international in its scope, was that this Congress was conceived, organized and brought to a successful fruition by the Touring Club of France, a body having no direct interest in the promotion of Forestry. This club, composed of some of the most influential men in France, realized the esthetic value of the forest to the nation—a point which is almost entirely overlooked in Canada at present. If in Canada, as in Europe, our railways and national highways were bordered by beautiful tracts of forest-land, instead of the bare, barren, fireswept wastes so prevalent at present, the money value of such an influence on the mind of the tourists would not be the least advantage to be derived from such forests.

WEST KOOTENAY POWER & LIGHT CO. CONTRACT

The unique position occupied by the Canadian General Electric Co., Limited, in the design and construction of hydro-electric power machinery is well shown in the contract recently awarded by the West Kootenay Power and Light Co. of Rossland, B. C. In order to increase the capacity of its plant the latter Company decided upon the addition of a 7,500 K.W.A. water wheel driven generator. The Canadian General Electric Co., Limited, will build the generator while the contract for the water wheel was placed with the subsidiary Canadian Allis-Chalmers Limited. This water wheel will have a capacity of 9,000 H.P. at 180 r.p.m. under a head of 70 ft. The contract therefore will be carried out practically by one firm who are thoroughly familiar with the design and construction of both the electric and hydraulic portions and with the conditions necessary for their successful operation as one unit. It is understood that the increase in the generating capacity of the West Kootenay Power and Light Co., has been undertaken in anticipation of the electrical requirments of the Canadian Pacific Railway which intends to electrify the line between Rossland and Castlegar. The contract for the electrification of this section of the railway was also awarded a short time ago to the Canadian General Electric Co., Limited.

SODA PROCESS

ESPARTO

By **ERICH RICHTER, D.Sc., D.E.**

In August 1854, Charles Amedee Mellier took the patent on the treatment of straw and other raw-material with caustic soda solution. Two years later, 1856, Th. Routledge, then manager of the Ford paper works near Sunderland in England, started to use the small alkali process with another raw-material, with Esparto or Alfa (Stipa tenacissima, Ligaeum spartum). For a long time, the equipment of his mill was considered as most efficient in regard to the Esparto-pulp process. To-day its chemical and mechanical features are of course surpassed by our more modern mill equipment. Nevertheless, parts of the process employed by Routledge, are even to-day of more than historical interest, as they contain some principles which are still the subjects of inventions.

Esparto was first used in large quantities about 1860. Most of the raw-material is shipped to England, where it is almost exclusively used for pulp and paper, and it seems, that it does and always will successfully compete with the cheaper wood and straw-pulp. Owing to its comparative long and strong fibre and its purity, it is best suitable for the finest grade of papers, and generally commands a better price.

The plant itself, when young, is very tender and can advantageously be used for feed, while later on the formation of cellulose in stem and leaves is increasing, making it ripe for the pulp industry at the age of about 12 years. The grass from Spain is generally considered the best and this opinion seems to be strengthened by some of the chemical analysis. The tests of different chemists vary however considerable, most likely owing to discriminated sampling.

According to Cross and Bevan the yield on cellulose from the raw-materials are:—

Esparto from Spain	58%
Esparto from Tripolis	46%
Esparto from other sources	50%

while Dr. H. Mueller found:—

Spanish grass	50%
African grass	47.5—50.2%

The actual yield is put to 40–45% and even as high as 48%. It will however depend on the method employed. If vomiting boilers are used, the yield will be greater, while the same material cooked under pressure may give considerably less output. Still more important of course is the percentage of free alkali present. Considering however, that the practical yield is 43–45%, which is rather high for any soda process, it appears from comparison with other cellulose containing raw-materials, that the actual fibre contents of Esparto is at least 50% or several per cent. more.

Th. Routledge employed vomiting boilers in his mill, working we may say, half continuously with about 20 of them. The boilers contained a false bottom under which the steam entered. Live steam as well as indirect steam could be used. The first digester being filled with the grass and liquor, is cooked for 2 hours, after which time the solution, still containing a large percentage of free Alkali would flow through a pipe and spout in No. 2 boiler, while in No. 1, fresh liquor enters. Both digesters are then cooked again for 2 hours, No. 1 receiving fresh liquid, while No. 2 is filled with solution from digester 1. No. 3 is cooked with the spent liquor that has served in 1 and 2 digester already. This scheme is followed until the same solution has been used in 6 boilers, and does not contain any free Alkali anymore. Routledge found also, that the efficient washing of the pulp, which he performed in the digesters, required the constant use of 6 of them. The displacing of the partly used liquid in one boiler, by the solution from another one, took place gradually from the top of the digester, because the less used Alkali lye has the lower specific gravity. During this operation, the heating with steam had to be interrupted.

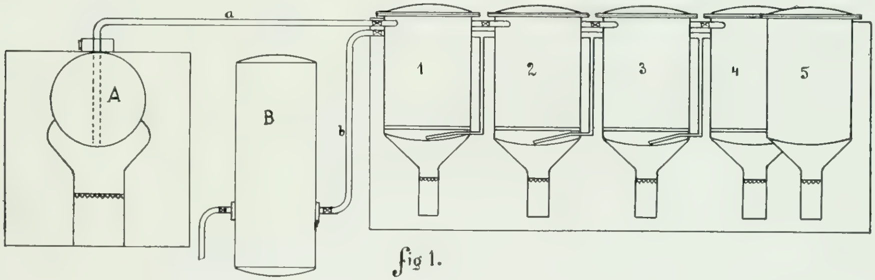

fig 1.

The process in this form, is of course almost an ideal one. Not only does it allow the use of the total Alkali present, it also insures a reasonable circulation and a thorough and efficient washing. For these reasons it gives ,or rather gave a better yield than any other method. Many inventors in soda and sulphite processes have later tried to work out methods on one or more of the same principles, but unfortunately without much success. No doubt, as all technical and chemical manufacturing strives at the one efficient method of producing, at the continuous process, some day, we will have in the pulp making an uninterrupted one, giving efficiency in every way and suspending with a good deal of machinery, which the discontinued process makes necessary at present. The endeavor to save time alone and indirectly the impulse given to chemical pulp production in the last half of the past century, by the enormously increasing demand for paper, later killed the Routledge process for Esparto, as well as it made futile many good attempts in similar lines.

The modern process for producing Esparto-pulp is well known and is more or less similar to the one used with straw. In one as well as in the other, a thorough cleaning of the raw-material is most important for a high class product. The cooking is done in closed and most frequently upright digesters. Like with straw-pulp, the manufacturer is often tempted to save bleaching agent, by repeated washing of the stuff, but the result is in both cases the same, a more or less considerable reduction in yield. Unlike the straw, Esparto contains less Silica thereby needing less soda in its conversion.

Soda Wood Pulp.

On the Seventh of August 1854, Charles Amedee Mellier got his first patent for the treatment of straw with alkaline liquor. On July 18th of the same year, the Englishmen Charles Watt and Hugh Burgess took the first patent in the United States, for the manufacture of chemical wood pulp from wood and caustic soda solution. They sold their rights later to Ladd and Keen, who made the first paper from soda wood pulp in 1860 in Royersford Penna. In 1865 the American Wood Paper Co. in Manyaunk near Philadelphia was founded. One year later, the Gloucestershire Paper Co., Cone Mills, near Lidney in England was formed, using the patents and method which Houghton independently of other inventors had developed in 1857. Houghton cooked the wood in horizontal cylindrical boilers. The wood was brought in the digesters in similar shaped cylindrical metal baskets mounted on rails. The space between the chip holding sieve and digester shell being partly occupied by steam pipes. According to Lee, about 260 lbs. of caustic soda (fig. 100%) were used for 2000 lbs. of wood, keeping the solution at about 12 degr. Be.

In the early days, much annoyance was experienced with leakage, caused by the expansion and contraction of the digesters and favoured by the great number of joints and connections. Later this was overcome by heating the digester shell like an ordinary steam boiler, with direct fire. The Cone mill and Manayunk mill adopted this latter system, while in Royersford, the digesters had a double shell, with the steam flowing between them.

John Dixon took in 1864 a patent for a new kind of digester, which was first principally used for Mellier's straw process, but later was also employed for cooking wood. The digester was of cylindrical shape, standing upright. The circulation of the liquor was insured by pumping the solution through a pipe from the bottom to the top. Between the pump and the upper end, the pipe was forming a coil, which could be heated by fire.

In his original patent, Dixon spoke of boiling wood, more especially poplar wood with one lot of caustic soda lye and using the spent liquor afterwards to cook straw. Practical experiments however proved, that this scheme was not feasible. After cooking the wood, the mills prefered to blow the solution in a tank, add some more fresh caustic soda first and then use it for boiling straw. It will be noticed, that Dixon's aim is principally to first insure a perfect circulation of the liquid in the digester and second, to use the caustic soda contained therein, more or less gradually. With little changes, his plans were followed in a number of mills on this continent, but while some of them were able to work efficiently and very successfully, continuous trouble was experienced by others. Often small fibres entered the pump and the pipe coil, becoming deposited and stopping the circulation. In such cases there was of course also the possibility of getting suddenly a much higher pressure in the digester owing to the development of steam in the coil.

The possibility of working this kind of digester successfully in some mills however suggests, that it was not the ault of the principle if difficulties were experienced. Furthermore, the same idea has been put into efficient operation later on, by Max Dresel in Dalbke, to which we will have to refer later on.

In a number of European mills, another method, Sinclair's soda pulp process was introduced. It differs from Houghton's only by the different arrangement of the digester. Sinclair's digester is upright and like in many other cases, heated by direct fire. In this form however, considerable difficulties, consisting mainly in frequent repairing of leaky joints, etc. had to be dealt with. By constructing a special furnace to superheat steam and cooking with the latter directly, and exclusively, Sinclair later on overcame the troubles.

One of the most economical soda processes ever invented, was the one patented in 1872 by Albert Ungerer. Working on a similar principle as Routledge's Esparto process, with the exception that the cooking was done under pressure, the process not only insured an efficient use of the caustic soda, but through talented applied mechanical features, met the demand for a speedy and large output of pulp. In fact the practical results showed, that the process worked most economical, where great quantities were desired.

With the aid of the 2 sketches, we will give a short account of the principles and working of this process. 1, 2, 3, 4, 5, 6, 7, 8, 9, are the digesters, the total number of which depends on the kind of wood used. Birch, Maple, Poplar requiring less, while for the cooking of Spruce, Balsam, etc., up to 9 are necessary. Two systems of pipes a and b allow the independent filling of each digester with water and soda solution. A is a storage tank for the liquor in which the latter can be heated bringing the pressure up to 90lbs., or rather a little more. Having all digesters filled with chips, the liquor is introduced in boiler No. 1 and after filling it, gradually flowing through 2, 3, 4, 5, and 6 always entering at the bottom. When filling these 6 digesters, the liquid at No. 1 is kept at a pressure of about 90 lbs., same gradually decreasing, until it is about 10-15 lbs. in No. 6. All 6 digesters being filled, the draining valve on No .6 is opened and B connected with digester 1. B is a tank through which the wash water flows. Of course the latter is kept at a higher pressure than the liquor in the digesters. Water enters digester 1 at the top, driving the caustic solution from 1 to 2, 2 to 3, 3 to 4, 4 to 5, 5 to 6, while the liquor in 6 flows to the recovery system. Fresh alkali solution is then brought through a pipe into digester 2 after having 6 connected with 7. Then again fresh water is pumped into 1 removing the liquid contents to 2, the caustic soda solution from 2 to 3 etc. and from 7 to the recovery. This is repeated till every digester has been cooked 5 times with spent liquor from digesters ahead of her, and one time with fresh lye. Every lot of pulp is washed 3 times the last time using fresh water. Through pipe c the 9th boiler is connected with No. 1, thus closing the circle. The digesters are covered with saw-dust or ashes to prevent radiation and loss of heat. To keep temperature and pressure which might have decreased in conducting the liquor through pipes etc., at the proper amount, a small grate permits heating each digester separately.

This Ungerer process came into operation first about 1876 in Stuppach near Gloggnitz, Austria. It gives an excellent soda pulp, regarding the output as well as the grade. It bleaches so easy, that on exposing some pulp to sunlight, it will lose its greyish color and become perfectly white.

At first it is hard to see, why this excellent method did not replace all the other systems. However it has to be considered, that some practical experience, lasting for years, had to be gathered first and that a little time later the Sulphite process, with its better yield came into being, competing heavily with any soda pulp and although there has been a fair demand for the latter and probably will be for some time to come, the pure soda pulp industry seems to be doomed. Old established mills are supplying what is needed and are kept in running order. Occasionally a small new mill is erected, where the freight for pulp from other mills insures a reasonable profit, or where particular local circumstances, as supply of a certain kind of wood, force to use it. It has lost the leadership to-day and given it to its sister-industries, the Sulphate and Sulphite pulp processes. There is however one more chance to revive it, although probably not in the original form, if its spent liquor can be used advantageously or more profitably than the one from the Sulphate or Sulphite industry. Indications to-day however tend to show, that the last named processes will always dominate. Although still young in its general use the former one allows already the recovery of a fair amount of useful chemicals at least under certain conditions, while any day may bring us the process for turning the sulphite liquor into profitable products.

Amongst other different patents for soda processes, or digesters for cooking soda pulp, a prominent one is the digester which has been patented by M. Dresel in Dalbke near Hannover. It is an upright boiler from which a pipe at the bottom leads to a special, and later several times, improved heater. From there the hot soda solution following its natural tendency, is conducted to the top of the digester. At first, this would seem to be exactly the same arrangement as proposed and used by Dixon. There is however one great difference in my opinion. While in Dixon's apparatus, the circulation of the liquor was augmented by a centrifugal pump, therefore forced to flow with a certain velocity, in this new, Dresel's form, the solution moved only according to temperature differences acquired in the heater. When in the first case, by forcing the circulation, some of the fine and partly converted fibres were torn from the main body of the chips, not the same was done in the other digester. Further the little pump and coil, with connections etc. on Dixon's digester are more apt to leave edges and dead corners in which the floating fibres could settle. Dresel too in his original patent had provided for a coil. But later he abandoned this and the digester liquor then entered a small chamber from which a number of straight but upwards leading pipes, arranged over the grate, brought the liquid to another chamber. The latter collected all the heated solution and through a single outlet and pipe, returned it to the digester.

Dresel's digesters have been very successful and have been most extensively used in Europe, although some were also erected on this continent. Through the effective circulation, the cooking is done in 2½-3 hours, leaving an excellent white and easy bleaching soda pulp.

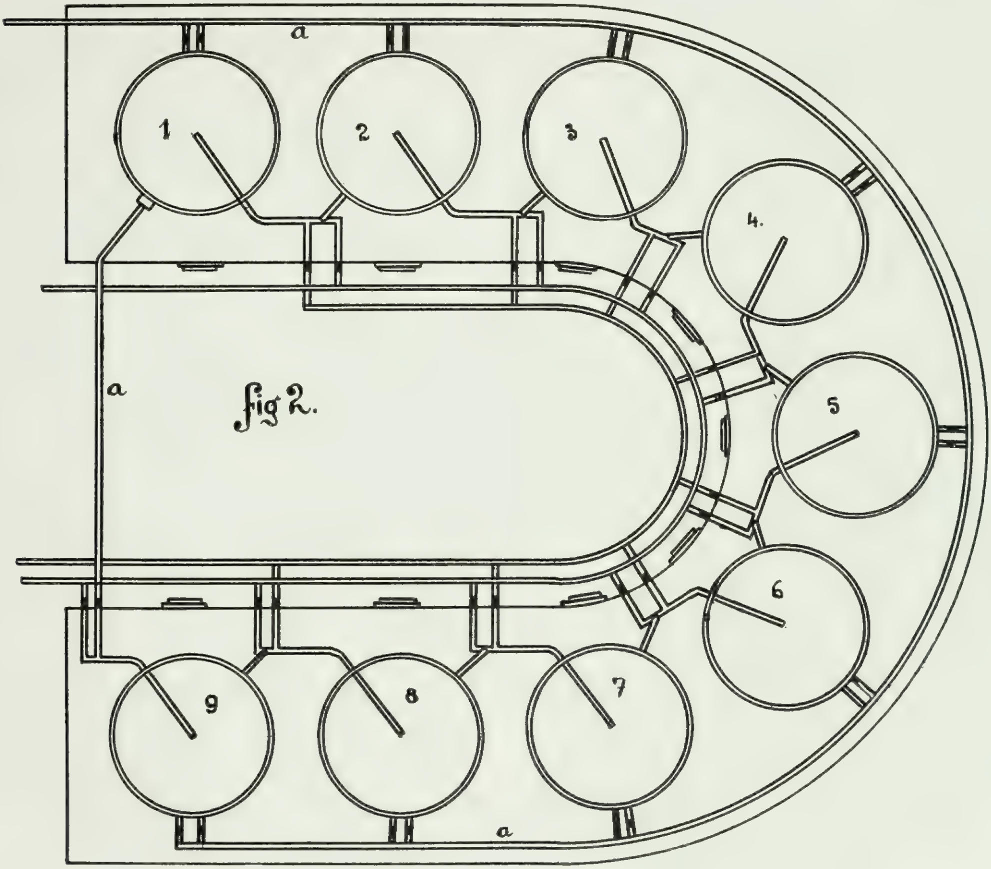
fig 2.

To what absurd technical construction some good ideas lead, as the insuring of a perfect circulation is, may be taken from the following example. In one mill in Sweedn, cylindrical and horizontal revolving digesters were used for a long time. They had the disadvantage of being difficult to empty and fill. It was then decided to erect them upright and let them turn on their short horizontal axes. This was of course the worst that could be done. The contents would pack together in one big lump on the lower end and every time it rose a little above the horizontal, it would come down to the other, now lower end, all at once. Naturally endless trouble with shaft and bearings followed, not considering that the resulting pulp was not of the best quality.

Another interesting soda pulp process has been used by the Forest Paper Co. in Yarmouth, Me. Wood is cut in disks and put in horizontal revolving digesters. Caustic alkali solution of certain strength, for instanee, 14-15 degr. Be. for Spruce and Balsam wood, or 7 degr. Be for Poplar is then pumped in the boilers until the digester is entirely filled and the pressure rises to 90-100 lbs., which is kept up without heating, for about 1 hour. After that time, the liquor is drained off and the wood soaked with alkali solution is transfered to similar shaped digesters below, which can be heated with indirect steam and where it is baked for 5-6 hours. The resulting pulp it is said, is gray colored and has strong and good fibres. It was largely used for wrapping papers. Whether this process gave good results as to yield etc. or not, the author was unable to ascertain. Theoretically it should give a good fibre material, but probably owing to the double and inconvenient handling, the process did not gain any notoriety. It was introduced and worked only in the one mill.

One of the most successful and now more general used kind of soda pulp processes, the invention of C. F. Dahl from Danzig, is the Sulphate soda pulp manufacture. According to Dahl's patent which he took in 1884, the first cooking is done in exactly the same way as in the ordinary soda pulp process, with caustic soda solution. When recovering the liquor, generally not more than 92% of the original used amount of salt is received and the balance has to be made up with fresh chemicals. Instead of using caustic soda for this purpose, Dahl is using Sodium sulphate. The latter, according to some authors, has no influence on the second cooking process, while others claim, that it preserves the fibre. From more modern investigations however, it seems certain, that the influence of that salt is beneficial. The spent liquor of the second cooking is recovered in the usual way, the salts being finally molten, in order to free them from small particles of carbon. The cakes are then dissolved, causticised with lime solution and after adding Sulphate of soda, used again for cooking purposes. According to Dahl it is good practice, to add the Sodium sulphate to the recovery product, when it becomes causticised. The last named chemical often contains considerable amounts of impurities, especially iron. The author had the opportunity to test some technical Sulphates, intended to be used in a Sulphate pulp mill, and below some of the figures are given:—

97.5%	Sodium sulphate
0.8%	Free Sulphuric acid
0.4%	Iron
1.3%	other impurities.

Another test gave 0.35% Iron, while Schubert found up to 0.6% Iron in one sample. By adding the Sulphate previous to causticising, all the iron or rather most of it, is precipitated as Iron sulphide and removed with the lime, thus preserving the color of the pulp. The Sodium sulphide present in the recovered lye, being itself what may be called caustic, it is not necessary to use as much quick lime for the Sulphate process, as for the ordinary soda pulp manufacture, which is certainly an advantage, although even yet, the waste lime is still a nuisance. Some of the mills recovered their lime, for some time at least, the apparatus used, was the cylindrical rotary furnace, as employed in the cement industry. It is however impossible to work it efficiently with cement, as far as coal and heat consumption is concerned, and it seems certain that the efficiency would be less when diluted lime solutions have to be evaporated and the lime burned. The useful appliance of this waste product is still in question.

The recovered salt has about the following contents according to Hofmann:—

16%	Sodium Sulphate
50%	Sodium carbonate
20%	Sodium cuastic
10%	Sodium sulphide
4%	other chemicals

This seems however rather high in regard to Sulphate. Having large quantities of reducing organical matter in the waste lye, it is more probable, that on an average, only 8-10% of Sulphate are contained in the recovered product, as other authors found, while about 15% Sodium Sulphide are present. A regular boiling solution according to the above named, contains something like:—

37%	Sulphate of soda
28%	Sodium sulphide
24%	Sodium hydroxid
8%	Sodium carbonate
3%	other salts.

The beneficial action of Sulphate and Sulphide of Soda during the cooking process, as mentioned already, consists principally in preserving the cellulose or fibre substance. The process therefore yields a higher percentage on chemical pulp, leaving the wood fibre in a strong and little altered condition. The process has another advantage. Like the ordinary soda process, it is available for almost any kind of wood. Its one great disadvantage however, is the nuisance caused by the discharge of obnoxious fumes, during the recovery of the liquor. Peculiar enough, it seems, that the amount of these organical sulphur compounds is larger when efficient vacuum evaporators as the Yaryan or others are used, than when the less effective reverbatory furnace is employed.

It is interesting to note how Dahl came to invent his process. Being manager of the Danzig soda pulp mill at the time, he had the opportunity of frequently visiting a glass factory located directly opposite. When melting glass, besides other substances, soda carbonate was used in the early times. The soda however advancing in price, was later replaced by the much cheaper sodium sulphate. By taking the experience of the glass factory and trans-planting it to his own mill, supported by a thorough chemical and engineering knowledge and last but not least, favored by circumstances, he was soon able to work his new process efficiently.

The government nurseries in Norfolk county have been visited by Hon. W. H. Hearst, Ontario Minister of Lands, Forest and Mines and by Hon. James Duff, Minister of Agriculture, with a view to taking more progressive steps in the matter of reforestration of some of the waste portions of the province. E. J. Zavitz, Provincial Forester for Ontario, has been engaged for some time on an expansive policy and in the near future an announcement will be made regarding providing pine seeding and other trees for a number of municipalities who have applied for them.

PAPER AND PULP UNDER THE MICROSCOPE

By SINDALL AND BACON

Special Series of Contributions to Pulp and Paper Magazine

CHAPTER IX.

Cutting Transverse Sections of Paper and Fibre.

The mounting of specimens in wax for the cutting of sections is not always permissible, in which case other methods of mounting preparatory to cutting must be adopted. One of the most useful substances for this purpose is Celloidin.

If this Celloidin is dissolved in a mixture of equal parts of absolute alcohol and ether to give a viscous solution of a density equal to that of glycerine, a useful mounting medium is obtained. This may be used for sections of paper and for soft fibres which have been reduced from the raw material by treatment with caustic soda. The specimen is immersed in ether for 2 or 3 hours to remove the moisture, and then left in the celloidin solution for several hours. The specimen is carefully removed with a pair of tweezers, and the rapid evaporation of the ether causes it to be surrounded by a coating of celloidin. The quantity may be increased by just dipping the coated substance again in celloidin and holding it up to drip. Repeated immersions in this way gradually produce a fairly thick pencil of celloidin containing the mounted specimen in the centre.

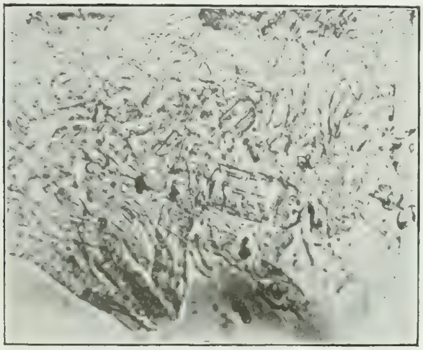

Fig. 1.–Traverse section of parchment paper showing the absence of air space.

For a very dense substance a double soak is sometimes advisable, in which case the specimen is soaked in a more dilute solution of celloidin and then transferred after 10 to 12 hours immersion to the original heavy solution of celloidin.

The PENCIL of celloidin is exposed to air for half an hour, by which time it will be sufficiently hard for cutting.

The simplest method for finally mounting the specimen in the microtome is to cut a small "candle" or "cylinder" from an ordinary carrot one inch in diameter to fit the microtome. The carrot is split in half and a small space bored out from the centre to receive the little pencil of celloidin. The two halves of the carrot are pressed together into the microtome and the sections cut in the usual way.

Mounting in Gelatine.

The examination of the fibres in paper requires considerable practice and manipulation owing to their very short length. It is seldom necessary to examine the fibres in this way, but when a mount is needed it can be obtained by teasing out a few of the fibres from the paper, which should be previously moistened with hot water. A small bed of gelatine obtained by pouring a few drops of hot strong gelatine solution on the slide should first be prepared, and then the fibres are teased out so as to obtain a number of them parallel to one another on the bed of gelatine. The fibres are covered with a further quantity of gelatine and the mass allowed to set by cooling. The specimen should then be left in ordinary methylated spirit for several hours until perfectly hard. The specimen is subsequently embedded in carrot and the sections cut as already described. When the sections have been cut the specimen can be put back into methylated spirit and kept for any length of time.

Mounting the Objects.

When the objects are merely prepared for temporary examination they can be mounted and covered without much trouble.

Objects Mounted in Gelatine.

The gelatine can be soaked away if necessary with a little hot water from the section as it lies on the glass slip. The fibres can be stained with any aniline dye or with Herzberg's reagent, and then examined. If a permanent mount is required the gelatine need not be removed, the section being transferred to methylated spirit, and subsequently into oil of cloves for 5 minutes. The section is then removed from the oil of cloves and put on a slide. By means of a piece of blotting paper the oil is drained off as far as possible, a drop or two of Canada Balsam is added to the specimen, and a cover glass put over it. It may be mentioned that Herzberg's reagent does not give a permanent staining to the specimen. Haematoxylin is probably the best permanent stain for this purpose.

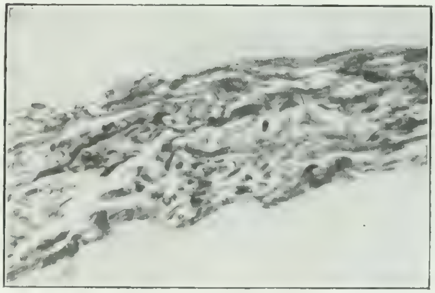

Fig. 2. Traverse section of bulky book paper showing large air spaces.

Objects Mounted in Celloidin.

The section after cutting is placed in a small dish containing methylated spirit, and then transferred to strong alcohol in another dish for not more than 2 minutes. Celloidin is solluble in alcohol, but since it takes about 4 minutes to act on the celloidin, the object can be safely left in the strong alcohol for 2 minutes in order to complete the dehydration and toremove any traces of moisture. The section is then transferred to oil of origanum for about 5 minutes, and finally to the slide. The traces of oil are removed carefully by means of blotting paper. The object is strained if desired with Haematozylin, mounted in Canada Balsam, and covered.

As we have already hinted, the cutting of sections of paper opens up many interesting problems which we illustrate by three specimens.

FIG. 1.—This represents the transverse section of a piece of parchment paper showing how the action ofthe sulphuric acid has been made to swell the fibres and close up the pores of the paper so that neither air nor moisture can penetrate.

FIG. 2.—This is a section of a well-known bulky antique paper, much in favour for books. It will be noticed that a very large percentage of the volume is occupied by air space, and it is a simple matter to calculate the amount of volume actually occupied by the fibre and air respectively. In many book papers of this description 60 to 70 per cent. of the volume of a sheet of paper is air space.

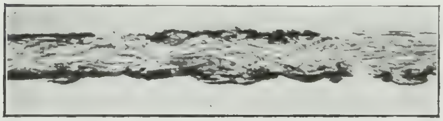
Fig. 3.—Traverse section of common news after printing, showing the ink on both surfaces and the amount of penetration.

FIG. 3.—A transverse section of a common news after printing. It is well-known that in order to get the ink to "dry" as quickly as possible, ordinary so called driers are added to the ink. As a matter of fact no such actual drying takes place, but the thinning of the ink causes the oily vehicle to penetrate the paper and thus give a kind of drying effect. The penetration of the two sides of the paper by the ink is clearly shown in the section.

FAVORED NATION PROTEST.

(Special to Pulp and Paper Magazine.)

New York, N.Y., August 13, 1913.

Arhtur H. Washburn, of the law firm of Comstock and Washburn, No. 12 Broadway, when seen today by your correspondent, stated that in the event the Department of State, which now has the celebrated wood pulp case in hand, reported to the Treasury Department that pulp and paper coming from Sweden ,Belgium, Finland, Denmark, England and Newfoundland, or any of these countries, is not entitled to free entry under the decision in the most favored nation case, protests would be filed and the ruling tested by the courts. "It appears that the decision of the Customs Court of Appeals", says Mr. Washburn, "made no mention of wood pulp imported from these countries, but limited its ruling to imports from Norway, Austria-Hungary, German and Russia mentioned in the protests presented to it for adjudication."

"It is not likely, however," he concluded, "that the free entry from Russia will be contested, but for the other countries it is contended that the same privileges should be granted to them as with Canada and the others. No action will be taken until the Department of State issues its list of nations having treaties with this country similar to those of Norway and Germany."

So far local importers have not received their refunds, but the customs authorities are permitting free entry of wood pulp and paper from countries mentioned above, and the principal importers in order to invoke contracts are offering inducements in the form of reductions on all pulp imported from Norway, Austria and Germany.

U. S. TARIFF AND RECIPROCITY.

(Special to Pulp and Paper Magazine.)

Washington, D. C., August 12, 1913.

Tariff matters here continue to drag along at a snail like pace and no important developments have transpired of late pertaining to Schedule M. The new bill is being taken up paragraph by paragraph for amendment and the authorities have not yet reached the paper schedules. The delay thus far have been occasioned by the amendments offered by the republicans and their protracted arguments. Naturally the minority in the Upper House feel that they should have some consideration, and while anxious to protect the rights of their constitutents, they are meeting with but scant attention in their suggested amendments, and they have about concluded that it is a waste of time, and only delaying the inevitable to try to have the present measure changed.

Senator Hitchcock of Nebraska is a great believer in reciprocity. In discussing the situation today, he said: "Reciprocity is a principal to which I believe any Democrat can give his approval. It ought not to be a sectional question, and yet, unfortunately, it is so treated by a great many. Reciprocity with Canada is advocated by people some distance removed from the boundary, but those living adjacent to that country during the last discussion of the question were up in arms against it. IF A PRACTICAL TEST WERE GIVEN IT I BELIEVE THIS ANTAGONISM WOULD DISAPPEAR.

"There is a reciprocity provision in the pending tariff bill. Just how far it can be made effective remains to be seen. Some of the rates in the pending bill, however, would seem to preclude the idea that any trade could be negotiated with these items as a basis, for there would not be much to offer in the way of inducements.

"I believe that everything that can be done to enlarge American trade, so long as it can be done without injury to the domestic producer, should be done by Congress. If we can increase our foreign markets by enabling our home manufacturers and producers to enter those markets under more favorable trade conditions than they now enjoy, there should be no hesitancy in doing so. To do that we must make concessions also that will open our own doors to products we need, and which do not seriously compete with the products of manufactures of our own country.

"Reciprocity brings about an ideal condition resulting in mutual benefits to both parties to the agreement. It interferes with the receipts of the Government in a negligible amount only, and whatever loss might come from that would be more than compensated for in the increase in trade of our own people, which would mean, of course larger sales and more money for both the men whose capital is invested and the men who do the work."

The tender for the burned timber in the township of Gooderham along the line of the Timiskaming and Northern Ontario railway, by the Pembroke Lumber Co., of Pembroke, Ont., has been accepted by the Ontario Department of Lands, Forests and Mines. The figure is $14.40 per 1000 feet and $2 per 1000 stumpage dues. The only other bid was from the J. J. McFadden Co., of Renfrew, who offered $8.26 per 1000 feet. The burned area, from which the timber will be taken, covers about sixteen square miles.

PERFECT COLOR MATCHING OUTFIT

(Specially Contributed)

The light from a clear north sky, the ideal light for color matching, has always been a "will-o-the-wisp" to manufacturers who depend upon the proper matching or selection of colors as an important part of their business.

At the best, this light is only available a few hours each day, a feature which places a limitation upon production, while on dark or rainy days the absence of this much desired light places a most effective brake upon the output.

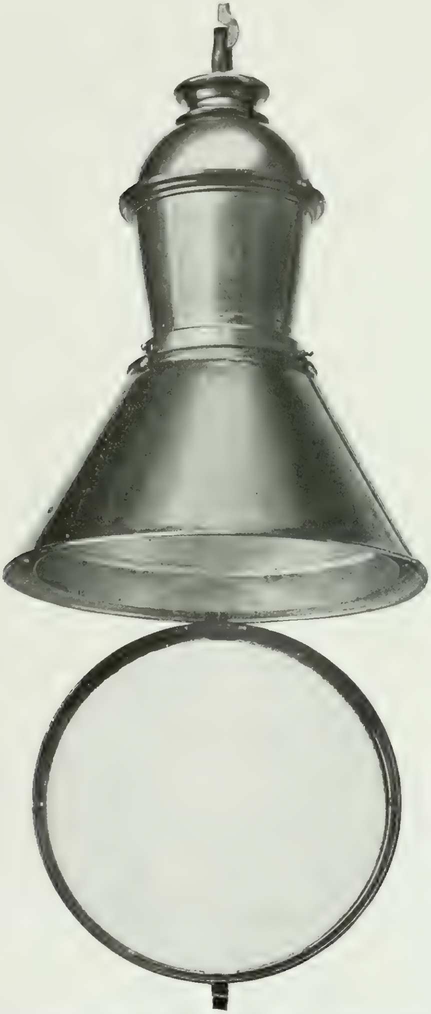

Fig. 1.—Color Matching Outfit, showing Screen lowered

Of course under stress of exigencies manufacturers have been compelled to do more or less "guessing" by attempting to match their colors under ordinary artificial illuminants but this method is precarious and not countenanced by the careful man who will not jeopardize the quality of his work by this "guessing" method.

Some of the industries that have been subservient to the vagaries of this north light are manufacturers of wool, paper, cotton and silk dyers and dye stuff makers, lithographers and printing ink manufacturers. The tobacco and leather dealers in sorting the various grades of material also require the closest attention to color values, and they have, therefore, been in a measure dependent upon this light.

One of the most prominent lithographers in the country has recently said that "one of the greatest hardships that the trade has to endure is trying to match colors and tints on dark days and at night."

These conditions in fact became so burdensome and irksome in these days of scientific management, that one of the largest fabric corporations in the world some time ago appealed to the General Electric Company to work out the problem.

Even with the corps of trained illuminating engineers and extensive laboratories which that company has available the task was difficult. At last, however, a color matching outfit was evolved which has a spectrum EXACTLY similar to that of "a clear north sky" and is a marvel of simplicity

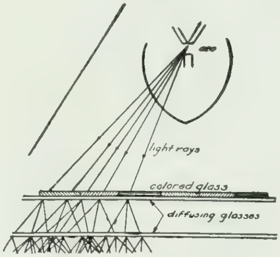

Fig. 2.—Diagram of Light Rays

The device consists primarily of an intensified arc lamp with a special casing and an ingenious arrangement of glass screens that remove the excess of red, orange and violet rays found in the spectrum of the arc light.

This intensified arc lamp has always been recognized as the nearest approach to daylight of any commercial artificial illuminant and thousands are being used in the leading department stores of this country. The addition of the color screen corrects the light absolutely to that of the north light.

The color screens consist of a number of colored strips arranged side by side to take out the excess rays, and a diffusing glass whose function is to mix the light. Figure 2 shows diagramatically how this is accompliešhed.

These glasses are made up in the form of a circle about 16 inches in diameter and are placed in the large end of a conical hood which is attached to the casing of the lamp. This hood surrounds the inner globe and is given a reflecting surface so that the light is projected down through the color screen and the direct rays are kept from the eyes of the user.

Already this device has been standardized for use in all of the mills operated by the corporation who sought relief from the "north light" vagaries.

Thus has electrcity been harnessed to do the work of "the light from the clear north sky" and day or night, rain or shine the turn of a switch places in use a perfect color matching light permitting the maintenance of an accuracy of quality which is the desire of every manufacturer.

FAVORED NATION REFUND.

(Special to Pulp and Paper Magazine.)

New York, N. Y., August 12, 1913.

At least for the present, Norway, Austria-Hungary and Germany will be the only European countries to benefit in the respect to the free entry of pulp and paper following the decision of the United States Court of Customs Appeals. These countries were specifically named in the judgement, but Sweden and Great Britain, having unquestionably the same treaty rights, will be favored in like way as soon as the State Department, to which the question has been referred, shall have formally reported to the Treasury Department in the Status of the commercial treaties with these two nations. The treaties undoubtedly accord them equal privileges with other nations. With Russia and Finland the cases are different. The Russian treaty with the United States was abrogated last January 1st. and if the Treasury Department decides to abide by the letter of the law, it may rule against Russian imports since that date; and it is possible that it may be decided to go further and to tax pulp and paper made in Germany and Scandinavia from Russia wood. Finland imposes an export tax on wood, and consequently is not entitled to free entry of its pulp.

The following statement has been issued by the Secretary of the Treasury to collectors acquiescing on the decision of the United States Court of Customs Appeals in T. D. 33,-434, with instructions to make the necessary reliquidations and refunds and future liquidations:

TO COLLECTORS OF CUSTOMS AND OTHERS CONCERNED:

The department has acquiesced in the decision, dated May 12, 1913, of the United States Court of Customs Appeals (T. D. 33434) in the cases involving the most-favored-nation clauses of various treaties as affected by section 2 of the act of July 26, 1911.

Attention is invited to the fact that the said decision does not in terms apply to importations from other countries than Norway, Russia, Austria-Hungary, and Germany, and that the treaty of commerce and navigation between the United States and Russia of 1832 expired on December 31, 1912.

Collectors of customs are hereby instructed to make the necessary reliquidations and refunds strictly in accordance with the terms of the court's decision, and to be governed thereby in all future liquidations until otherwise instructed.

In view of the expiration of the treaty with Russia, the principle of the court's decision will not, at this time, be applied to imports from that country made since December 31, 1912.

The applicability of the principle of the said decision to imports from other countries than Norway, Austria-Hungary, and Germany will be the subject of further instructions.

(85245.) W. G. McAdoo, Secretary.

In discussing the matter Secretary McAdoo further stated that in as much as considerable pulp and paper has been received from Sweden, Belgium, Finland, Newfoundland, England and Denmark, which countries were not specified in the recent decision, the Department has communicated with the Secretary of State to ascertain whether or not merchandise from these countries is entitled to free entry by virtue of treaty rights. Pending receipt of advices from the State Department in this regard, the Treasury will take no action authorizing free entry of pulp and paper importations from these countries.

This is the first effect felt by Russia of the abrogation of the treaty of 1832. The conditions which governed the commercial relations of the United States and Russia under the treaty have been continued pending the negotiations of a new convention. This first disturbance of the status quo was necessary, it is explained, because the Treasury Department under the law could not extend favored nation treatment in the absence of a treaty. Any other course it is added, would not stand the test of the courts. Some officials were inclined to believe that this step might give impetus to negotiations of a new treaty for it means that Russia cannot claim "favored nation" privileges in connection with any other tariff questions which might arise in the future.

Russia has subsequently protested against the denial of free wood pulp and paper from that country because of the abrogation of the treaty of 1832, on the ground that the action was in violation of the understanding between the United States and Russia pending the negotiations of a new treaty of commerce and navigation.

The question is now before the Department of State for its opinion as to whether pulp and paper from Russia, Sweden, Finland, Belgium, Denmark, England, and Newfoundland comes under the recent decision of the Customs Court of Appeals granting a refund on duties collected since July 26, 1911 and entering future importations free of duty. Keen interest is being displayed through the country as to the opinion of the State Department, and although the Department has not yet rendered its opinion, it is expected to be soon forthcoming.

UNITED STATES PAPER IMPORTS

(Special to The Pulp and Paper Magazine.)

Washington, D.C., Aug. 12, 1913

Statistics of imports into the United States during the month of June, and for the fiscal year ended June 30, 1913, have just been issued by the Department of Commerce.

This reports shows imports during June of 35,721,075 pounds of printing paper, valued at $726,923; as compared with the imports during June 1912 of 11,367,382 pounds, valued at $243,940. Of this amount Canada shipped into this country printing paper, free of duty (valued at not above 2½c. per pound) to the extent of 27,182,466 pounds, valued at $526,630 in June 1913 and 5,077,933 pounds, valued at $106,227 in June 1912. Canada also shipped into the States during June 1913, other paper and paper board up to 4c. in value amounting to 988,511 pounds, valued at $33,088. The total value of paper imports during this period was $1,839,763, as compared with $1,370,549 of the corresponding previous period.

Wood pulp imports in the aggregate, during June, 1913 amounted to 76,717,629 pounds, valued at $1,063,258 as against 87,955,496 pounds in June 1912, valued at $1,166,675 Of the mechanically ground wood there were imported 23,210,790 pounds free of duty, and 2,377,748 pounds dutiable, valued respectively at $158,274 and $18,925. This is compared with the previous June imports of 28,-565,490 pounds valued at $220,354 free of duty and 3,020,-015 pounds, valued at $24,254, dutiable.

In chemical pulp, Canada imported during June 1913, 4,153,590 pounds of unbleached, and 657,017 pounds of bleached, valued at $70,823 and $17,877. These imports are compared with the imports of June 1912 of 3,852,412 pounds of unbleached, valued at $67,745 and 924,633 pounds of bleached, valued at $24,050. Chemical pulps from all other countries amounted to 37,405,281 pounds of unbleached, valued at $591,795 and 8,913,203 pounds of bleached, valued at $205,464 in June 1913, which compares with

44,600,399 pounds of unbleached, valued at $678,988 and 6,992,547 pounds of bleached, valued at $151,284 imported during June 1912.

The following table shows the values and tonnages of importations of pulp and paper into the United States for the fiscal years ended June 30, 1913, 1912 and 1911:

UNITED STATES PAPER IMPORTS.

		1913		1912		1911	
		Pounds	Value	Pounds	Value	Pounds	Value
Printing Paper for Books and Newspapers							
From Canada, valued at not above 2½c lb	Free	234,619,685	$4,512,807	64,025,327	$1,218,638	....	....
All other countries, valued at not above 2½ lb	Dutiable	60;338,886	1,168,302	49,683,479	936,863	108,043,884	$2,010,502
All other printing paper	Dutiable	6,334,734	352,914	5,869,268	327,467	6,369,347	497,168
Total pringting paper		301,297,305	6,034,023	119,578,074	2,482,968	114,413,231	2,507,670
Paper and paper board from Canada, valued up to 4c. lb.	Free	6,404,723	210,298		5,709		...
All other paper and paper board	Dutiable	....	15,294,424	....	14,811,672		16,119,210
Total paper and manufactures of paper		....	21,538,745	....	17,300,349	....	18,626,880
Wood pulp:—							
Mechanically ground	Free	328,059,866	2,685,687	351,648,653	2,817,797	390,308,246	3,052,297
Mechanically Ground	Dutiable	39,675,516	317,002	80,215,226	644,740	136,694,003	1,146,463
Chemical unbleached, from Canada	Free	53,235,776	931,704	31,374,758	500,164	.	. . . .
Chemical Bleached, from Canada.	Free	11,364,662	296,072	14,223,126	355,392		
Chemical Bleached ,other couhtries	Dutiable	545,338,731	8,504,238	445,305,286	6,766,107	413,180,484	6,286,615
Chemical Unbleached, other countries	Dutiable	152,417,475	3,430,613	146,851,409	3,080,722	161,313,079	3,494,982
Total Pulp		1,130,092,026	16,165,316	1,069,618,458	$14,218,922	1,101,795,812	$13,980,357

NEWFOUNDLAND PULPWOOD APPEAL HEARD IN ENGLAND.

The Anglo-Newfoundland Development Co., Ltd., vs. The Newfoundland Pine and Pulp Co., Ltd.

(From our London Representative).

London, August 1, 1913.

For some time past the Judicial Committee of the Privy Council of Great Britain has been engaged hearing arguments on an appeal from a judgment of the Supreme Court of Newfoundland of April 8, 1912, varying a decision of Mr. Justice Johnston. The arguments were heard before a Board consisting of Lord Atkinson, Lord Shaw, and Lord Moulton and judgment was delivered yesterday by Lord Moulton who was accompanied by Lord Atkinson, Lord Shaw and Lord Parker. Mr. Donald MacMaster, K.C. of the Canadian Bar and Mr. F. Whinney appeared for the appellants and Sir Robert Finlay, K.C. and Mr. Walter Burt were for the appellants.

The respondent company sued the appellants for the value of timber which they had cut, carried away, and disposed of for their own use. Mr. Justice Johnston decided in favour of the respondents for $6;040, but the Supreme Court, when an appeal was before it, increased the damages to $15,536 On June 23, 1906, licenses were granted by the Government to the Pulp Company entitling them to cut timber over an area mainly situated within the watershed of the Exploits River in Newfoundland. By an indenture dated April 26, 1907, the Pulp Company assigned the licenses, with certain reservations, to the Albert E. Reed Company (Newfoundland) (Limited), and by an agreement of the same date the Reed Company granted certain sub-licenses to the Pulp Company. Those sub-licenses were separate documents, each one applying only to the lands included in one of the original licenses from the Crown. Finally by an agreement of June 3, 1909, the Reed Company assigned to the Development Company their rights and the licenses and sub-licenses so far as they related to a certain portion of the area comprised in the 14 original licenses. It will be seen, therefore, that the rights of the Pulp Company depended solely upon their being the holders of the sub-licenses and it is ,therefore, upon the true construction of those sub-licenses that the rights asserted by them must depend.

Lord Moulton said, in his judgment, the reservation was in these words: "Reserving nevertheless unto the licensors, their assigns and nominees the said tract, piece, or parcel of land for the purpose of cutting spruce and fir having a diameter of less than 10 in. measured at a point 12 feet at least above the ground and for the purpose of cutting such timber as the lincensors may require in connection with the establishment and maintenance of pulp and paper mills and of any buildings or erections for dwelling or other purposes, and of any dams, roads, bridges, or other works in connection with the foregoing or any of them, but not for the purpose of sale or export." His lordship said the appellant company contended that the words "their assigns or nominees" ought to be read into this reservation before the words "may require," so that the right to take lumber—as contrasted with pulpwood—would extend to all that "the licensors, their assigns, or nominees may require" for the purpose set out in the latter words of the clause. Unless that were so the judgment appealed from must stand, because it was the Development Company that cut the lumber for their own purposes, and they were not the "licensors." It was, of course, possible in certain cases to read in the word "assigns" when not expressed in the document though he did not know of any case in which the words "assigns or nominees" has been thus supplied. But whether or not it was proper so to do must depend on the contest in each case. In the present case the reservation, even if it be restricted to the requirements of the licensors themselves, was so wide and expressed in such vague terms as to raise doubts as to its enforceability. There was no restrition as to the situation of the mills or buildings or of the provenance of the wood to be worked upon in the mill, nor did the surrounding circumstances enable the Court, consistently with the rules of construction of documents, to introduce the necessary limitations. Each of the licenses was a separate document not referring in any way to the existance of the others. It was admitted by the appellants that it would be ridiculous to treat the reservation as covering only lumber required for mills to work the pulpwood obtained from the area covered by the license or to restrict the roads to roads used ouly for the purpose of bringing the mill the pulp wood from that area. The pulp and paper mills erected in this business were intended to deal with the pulp wood of very much larger areas and in fact with that from whole watersheds. If, therefore, it were possible for the licensors, having satisfied their own needs for the specified purposes, to assign the sub-license to some other company or to nominate some other person to exercise their rights thereunder, it would be possible to subject the lumber rights of the respondents to a series of fresh demands which might eventually destroy the value of their lumber rights under such of the sub-licenses as covered areas from which such lumber could conveniently be obtained. For these reasons the court was of the opinions that the reservation must not be construed as covering only the personal requirements of the licensors, and that, therefore, the judgment appealed from was right. The Court would humbly advise his Majesty the King that this appeal should be dismissed and that the appellants should pay the costs.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

In his report to the stockholders of the Stevens & Thompson Paper Company held several weeks ago at Hoosick Falls, N. Y., President George S. Thompson reported that the company had just passed through one of the most successful years of its career. The company has been in existence 58 years and during the past twelve months advanced the wages of its employeed ten per cent. Following the meeting of the stockholders, the directors convened and elected Mr. Thompson president and treasurer, and Fred N. Stevens secretary.

Under the management of Messrs. Crocker and McElwain, the Chemical Paper Company of Holyoke, Mass. has at last been able to pay a dividend on its outstanding securities. The shareholders were agreeably surprised last week when they received their checks for a quarterly dividend of 1¾ per cent. This is the first dividend that the company has been able to declare in many months and the stockholders are loud in their praises of the way Messrs. Crocker and McElwain have conducted the affairs of the concern.

The International Paper Company has commenced extensive repairs on its mills along the Black River in the northern part of New York. Work has already been started on the Ontario mill at Glen Park. The big dam at this mill will undergo many repairs so as to put it in a first class condition for the heavy flow of water expected in the fall and for the spring freshet which played havoc with the dams of this company last spring. The dam at the C. R. mill at Watertown will also be repaired and placed in A-1 order again. The dam at No. 4 mill, between Watertown and Glen Park, which was greatly damaged by the ice last spring, will likewise be renovated.

The troubles of the United Boxboard Company seem never to cease. Last week a suit was filed in Chicago by the bondholders' committee of the old company which is directed at the present officers of the new United Paper Board Company. The committee is headed by O. C. Barber, C. H. Palmer and L. D. Brown. It is claimed that the invention of substitute materials was largely responsible for placing the stock of the old company at a point where it was not worth much, and though two assessments were made to put the concern on its feet, neither had the desired result. Last year the United Paper Board Company was organized and recently the old properties were sold under foreclosure of the general mortgage, and the contention of the bondholders' committee is that they should have the difference between the realized amount and the price they paid. This amounts approximately to $1,000,000, and the suit is for that amount.

The contract for the building of a new coated paper mill at Rumford, Me., has been let to the H. P. Cummings Construction Company. The mill will cover an area of 60,000 square feet, and will be 350 feet long on the railroad side and run back 263 feet. There are to be six coating machines installed with a capacity of from 18 to 25 tons of paper every twenty four hours. Building operations are to be started immediately, and the plant is expected to be ready for operation by December 1.

Charles E. Outterson, president of the Analomink Paper Company at North Water Gap, Pa. has announced his retirement from that concern, having disposed of his interests to Peter J. O'Donoghue, the treasurer, and others. Mr. Outterson has been president of the company since it was organized fourteen years ago, and under his management the business has grown rapidly and extensively.

The following officers of the Lake Champlain Pulp and Paper Company have been elected by the directors at a meeting last week at Plattsburg, N. Y., for the ensuing year: J. J. Cunningham, president; George F. Tuttle, vice president; G. M. Ingalsbe, second vice president; and C. S. Johnson, secretary and manager.

The pulp mill of the C. A. Smith Company at Marshfield, Ore., is rapidly nearing completion, and it is expected to be in operation shortly. The success of this mill will be watched with keen interest by lumbermen throughout the northwest, as the mill is arranged to convert all the slab wood and general waste around the mull into pulp. For the present no attempt will be made to manufacture paper, although paper making machinery has also been installed in the mill. The plant is said to be the most modern in the country, and the pulp will be shipped to the Orient. The mill has been connected by conveyors direct with the big sawmill of the C. A. Smith Company, which cuts about 450,000 feet of lumber in ten hours. The slabs are handled once by hand, being thrown off the saws into a grinder, which throws it into the conveyors and carries it to the pulp mill. The mill will be in charge of Newdrum Brothers who have been brought there from Russia.

Torrential rains since the first of the month have sent the Wisconsin river to high water stage, and the Fox river as well as Lake Winnebago also were sent up from one to two feet. The rise in the Wisconsin valley was about thirty inches. Two unusual heavy storms broke over the territory, and for a time it was feared that flood damage might result. Water power conditions on the whole in Wisconsin have been very good this year, although the Fox river was well toward the low water mark several weeks ago.

In an effort to ascertain whether the leaves of the Mexican sisal plant are suitable for the manufacture of paper, a cargo of 1,000 bales of sisal leaves were brought into the port of New Orleans several weeks ago, and consigned to the Southern Paper Company at Moss Point, Miss. If the experiment proves a success it will mean that thousands of bales of these leaves will be used annually in the paper manufacturing industry of this country.

Plans for the erection of a big pulp and lumber mill on the St. John's river at Jacksonville, Fla. have been consummated, and construction on the plant will begin about October 1. Refuse pine, stumpage and what was formerly considered trash will be utilized in the pulp mill. The mill is expected to be ready for operation about January 1, 1914, and will employ 2,000 hands.

BRITISH TRADE NEWS

(Special to The Pulp and Paper Magazine.)

London, July 31, 1913.

The fact that a large amount of capital changes hands between London and Canada to back up pulp and paper propositions, a short reference to the monetary outlook should not be amiss. The crisis in the Balkan states has created some alarming news here, but the hope is expressed that when peace is declared all round the demand for paper, and pulp also, will be given a great impetus. With regard to immediate monetary prospects, it is a matter for congratulation that considerable liquidation has taken place in the stock markets and a halt has been called in the number of new issues. It is also satisfactory to know that credit has been so little disturbed by the events in the Balkans. Considerable hoarding has taken place in consequence of the war and when peace is restored these hoards, which must amount to enormous sums the amount of which it is very difficult to estimate, will gradually return to the money centres and bring considerable relief and enterprise. There is no need to take an alarming view of the monetary situation of lending to foreign countries is not too freely indulged in. Bankers are now pursuing a very cautious policy in London and will not on any account encourage speculation. but they are prepared to assist legitimate trading enterprise. By pursuing this policy they feel they need not apprehend any excessively high rates and they look forward to the coming half year with much confidence. The Scandinavians are complaining bitterly of the disturbed state of their pulp market and in Roumania and Austria-Hungary two more pulp producing countries things are also very unsettled amongst producers. To make matters worse some Scandinavian firms have been hard hit by the failure of a South South American paper mill and the sums involved are stated to be considerable. London buyers, owing to the present outlook, are very careful about placing orders for pulp in Europe and the opportunity at the moment should be golden for Canada's products if the market is well studied here.

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A writer in one of the leading financial papers in Manchester—a recognized authority on monetary subjects—has recently made some interesting comments on the German paper trade which go a long way to prove the statements that your correspondent here in London wrote in the Pulp and Paper Magazine in the earlier part of the year, at a time when German "speculators" were directing their attentions toward Canada. This financial writer says that the condition of the German paper trade is of a pessimistic character. "It is asserted," he adds, "that, in spite of the brisk demand experienced during the past year or so, excessive competition and over-production have prevented really profitable prices being obtained for most classes of paper. Producers have attempted to reduce costs and owing to the lack of organization amongst the paper manufacturers orders have frequently been taken at a loss in order to keep the machines fully employed. Raw material, wages, and coal have all been steadily advancing for some time, and there is no indication that the movement in this direction is at an end. Some of the firms who are engaged on specialties make handsome profits and this accounts for the average dividend paid during the past five years by 50 of the leading joint-stock companies, representing an aggregate capital of 80,000,000 marks (one mark equals about 24 cents), working out at 6½ per cent. for 36 per cent. of the companies, representing 27½ per cent. of the total capital, have paid no dividend whatever during the period. Including loans, the total capital employed is 124,000,000 marks, and as the average annual profit is 6.3 million marks the annual return on the actual capital is only obout 5 per cent. without allowing anything for reserves." Germans it must be remembered are charged a very high percentage for private and public loans and there is such a tightness of money that it is no wonder "speculators," who cannot succeed in their own domain, are turning their eyes on Canada for pulp and paper manufacturing.

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Building operations are being carried out on an extensive scale at present in England and in view of the good results accruing therefrom, it is also conceivable that the Wall Paper Manufacturers combine is benefiting accordingly. The building trade always shares in any period of very active trade and from the unprecedented volume of the latter for the past eighteen months the Wall Paper Manufacturers Combine is now receiving its due. Gross profits for the four years have averaged around $960,000 per annum and Manchester circles, where the ordinary shares are largely dealt in, are looking for a good increase for the financial year ended August next, and incidentally an increase in the 5 per cent. dividend paid for the past four years. Meanwhile the company's Cumulative Preference Shares, around par, are a good 5 per cent. industrial.

* * * *

As an instance of the good relations that exist between the workers and employers of some of the well managed British mills—mills where unscrupulous methods are unknown—about a week ago 500 hands from the Buckland and Crabble Paper Mills, in Dover, Kent, which belong to Wiggins, Teape & Co., were taken for a sight-seeing trip round London. The railway fares of all hands were paid by the firms and each person received 48 cents to spend and also a full day's pay for the time off. This action of the employers is only another of the many instances of generosity Wiggins, Teape & Co., bestow on their workers. The firm believes in studying the interests of their workers, because they know that good work is got of them when the surroundings are pleasant and above all there is an entire absence of disputes between masters and men. Wiggins, Teape & Co. have two excellent mills at Dover built on up-to-date principle.

* * * *

A man who talks a lot in London and does little work is usually termed a "gas-bag"—and we have a good many of them. It is also evident that they are to be found in Grimsby, where in Joseph Dixon's paper mill the few unsettled employees were not content with joining the paper trade union to have their grievances rectified, but they hurried off and became affiliated to. above all unions, the Gasworkers. Now what the relation is between gas and paper is beyond the dreams of avarice. At all events, Joseph Dixon's few unsettled workers got "gasing" and they then showed themselves up in their "true light" by serving an ultimatum on Joseph Dixon demanding higher wages. The Gasworkers Union blew the paper mill men up so much with loud talk that when the ultimatum was rejected a strike was commenced. Now Joseph Dixon is one of the best men in England for paying hands in a mill, his wages being high and hours fair. But the gasworkers and the gasers of the paper mill got together and they "gased" until eventually Joseph Dixon pricked the balloon and the collapse of the gasers and the strike were so sudden that the insubordinates are back at their work to-day like church mice. They got nothing after all their trouble and these gasers are now the laughing-stock of the English paper trad

No one seems to enjoy the fun better than Joseph Dixon (he is a vice-president of British Paper Makers Association). He is laughing yet over the whole affair and says the gas was too much for his men and he thought it best to let some of it out of them by refusing their demand point blank. Mr. Dixon recognizes that labour has a right to organize—in fact he is the prime mover of employers for the manufacturers to federate to meet organized labour—but he cannot get over the ridiculous move of his paper mill workers going to the Gasworkers Union to illuminate and rectify their grievances. The whole affair is too funny for words.

BUSINESS RESTRICTED.

(Special to Pulp and Paper Magazine.)

New York, N. Y., August 11, 1913.

That the policy in the delay in concluding the pending revision of the tariff schedules which Congress has pursued for the past month is doing much to prevent a more general expansion in paper and pulp lines is the prevailing opinion among the leading local manufacturers and exporters. Despite the fact that the volume of trade within the past three months has been very satisfactory, it is known that during the past month, at least, buyers from various parts of the United States have been either canceling their orders or requesting sellers to hold them in abeyance pending the adoption of the new ratiff law.

Inquiry at a number of the leading manufacturers this week gives rise to the gelief that a hasty clearing up of the tariff situation would do much toward bringing a general expansion of business in practically all linrs. There is a pronounced tendency among the heads of all commercial houses towards reticence on the question of the tariff outlook and its relation to the present and future conditions of trade.

OTTAWA NOTES.

Ottawa. Aug. 11, 1913.

Pulp and paper manufacturers, with manufacturers in general, are greatly interested in the mission which has taken H. L. Drayton, Chief Commissioner of the Dominion Railway Commission to England. He is going to confer with representatives of the British Board of Trade to ascertain if something can be done to govern or control in some way the freight rates charged by Atlantic steamship companies. With the opening of navigation on the St. Lawrence this year the steamship companies announced a substantial increase in the rates on all classes of goods, paper included. Then followed a protest from manufacturers all over the Dominion and it is owing to such a vigorous protest being made that Mr. Drayton has been commissioned by the Government to go to England. Just what action the Dominion Government or the British Government will take is yet problematical. It is generally thought, however, that should it be decided to attempt to place the tariffs of the steamship companies under the jurisdiction of the governments of the two countries it will mean a good deal of work for a joint commission. Whether one or the other goverment takes action or not it is agreed that the mere fact that the question is receiving attention will have a good effect for the shippers.

The City of Hull will derive $25,993 at the end of next year from the E. B. Eddy Company, lumber, pulp and paper manufacturers when the exemption from taxation, granted to the company 15 years ago when most of het plant was burned down in the big fire in Hull, expires. The plant is valued at $2,079,555 and when alterations and improvements now under way are completed another $500,000 will be added.

J. R. Booth will have 2,500 men working in 20 camps by the end of this month, 1,000 more than last year and consequently his cut will be much in excess of last year. The reason for a bigger cut this year is that there was a big supply of logs on the river a year ago and as these have bene almost all used it is necessary to get extra busy in the woods again. The camps will be along the Black, Coulougne and Montreal rivers principally. Most of the cut will be spruce and pine. Other local firms are also sending more men into the camps this year. There is a plentiful supply of men on hand.

The E. B. Eddy Company hope to have their new pulp mill in operation by the end of September at the latest. This information was gathered from General Superintendent Millen today, who said that the output of the plant will be considerably augmented when the new mill starts to operate.

PHILLIPS' PAPER TRADE DIRECTORY OF THE WORLD.

This year's edition of the Directory may, in a special sense be said to represent the increasing change and development which always characterizes in greater or smaller measure the pulp and paper trades of the world, for the number of alterations in, additions to, and deletions from the previous issue have certainly never been surpassed in the history of the work. No effort has been spared to make the revision to which the Directory has been subjected complete and thorough, and it is not without a sense of satisfaction that we affirm that the result is a compilation to which all may turn with confidence.

Following broadly on the lines of its predecessors, the Directory for 1913 has undergone but little change in form, but the Canadian section has been remodelled to the extent that New Brunswick and British Columbia take their proper place in it as forming part of the Dominion of Canada, instead of being accorded independent positions as hitherto. In other respects the main features of the work have undergone no material alteration and our efforts have been concentrated upon securing, as far as possible, complete and accurate lists of the paper and pulp mills of the world; Millboards Makers, Paper Stainers, Paper Agents and Merchants, Wholesale Stationers, and Paper Box & Bag Makers; Buyers of Paper Boards and Stationery throughout the World. In this we believe that we have so far succeeded that we can conscientiously recommend the Directory to the notice of all associated with the pulp and paper making industries and the allied trades. It may be of interest to mention that the number of paper-board and pulp mills which find a place in its pages approximates nearly 5,000.

The latest and most up-to-date particulars of the various trade organisations in this country, on the Continent, and in Canada and the United States will be found in the work, while to its numerous supplemental features—including the Glossary of the Commercial and Trade Terms in six languages, the lengthy list of Registered Watermarks—have been added to the Paper Trade Customs of France and the United States.

H. T. MELDRUM OFFERED SECRETARYSHIP OF THE C. P. P. A.

It is understood that Mr. H. T. Meldrum, Montreal secretary of the Canadian Manufacturers Association, has been offered the position as secretary-treasurer of the Canadian Pulp & Paper Association. The appointment is not yet confirmed, awaiting the return to the city of the President, Mr. Carl Riordan. Mr. Meldrum is well and favorably known throughout the entire industry and his appointment would undoubtedly be to the very best interests of the Association.

PULP AND PAPER NEWS

The Brockville Lumber Co., of Brockville, Ontario, has increased its capital stock from $75,000 to $200,000.

The Italians of Toronto intend publishing a paper in their own language and a company under the name of the Italian Courier Publishing Co., has been organized with a capital of $40,000.

Mr. Wm. Price, of Quebec, was recently elected Honorary President of the Union Bank of Canada, in succession to the late Hon. John Sharples of Quebec. Mr. Price was Vice-President of the Bank for several years past.

It is rumored that the Garden City Tissue Mills will install another tissue machine. The tissue production has increased very rapidly in Canada and it is doubtful whether the market can stand too large an increase.

The Standard Lumber Company's mill, which is located near Cranbrook, B.C. and had a daily output of about thirty thousand feet, was totally destroyed by fire recently. The loss of 135,000 is partially covered by insurance.

The Poste Haste Envelope Co., Limited, Toronto, has been incorporated with a capital of $100,000. The incorporators are Arthur B. Colville, Samuel D. Fowler, M. M. Hawkins, Albert E. Clark and Kenneth R. McClellan.

The Dominion Bond Co. which underwrote the securities of the Spanish River Co., has called a general meeting of the shareholders for August 18th to consider a proposal to increase the capital from $1,000,000 to $1,250,000 by issuing 2500 shares at par.

The Continental Publishing Co., Limited, of Toronto, has been granted a charter. The share capital is $40,000 and the company is empowered to carry on printing and publishing in all its branches. Among the incorporators are Isidore Simonski and Murray Simonski.

In a fire which broke out in the building of the Central Press Agency, on Pearl street, Toronto, damage to the extent of $40,000 was done to the two top flats of the four storey building. Tons of water were poured on the devouring element and the equipment was badly damaged. Fred Diver is managing director of the company.

The Interlake Tissue Mills have within the last few weeks put on the market a new sanitary paper towel. It does not have a harsh finish as many paper towels do, The whole equipment is furnished including the roller. Besides being sanitary, it is economical and especially adapted to use in Universities, offices, stations, hotels, hospitals, sleeping cars, etc.

Ritchie & Ramsay, Limited, Toronto, Ont., manufacturers of coated paper and cardboard, have opened a branch warehouse and sales office in Montreal in the Unity Bldg., corner Alexander and Lagauchetiere streets. A complete stock of all the well known brands of coated paper will be carries, including the "Red Seal Coated Book" and other grades.

The Sherbrooke Machinery Co., Ltd., have obtained the contract from the Abitibi Pulp & Paper Co., Ltd., for their entire equipment of wet machines, pneumatic savealls and screens, besides orders from the same company for 12 improved centrifugal screens. Mr. White, of the Abitibi Company has figured that twenty of the heavy design two-roll wet machines will be of ample capacity to handle their entire product, figuring all shut-downs, etc.

At the re-organization meeting held on July 21st, by the National Paper Co., Ltd., Valleyfield, Que., the following officers and directors were elected. Rainsford de Ware, president and treasurer; J. B. Morrow, vice-president; Edw. C. Evans, secretary; Geo. R. Wallace, of the Fitchburg Paper Co.; Geo. R. Wallace, Jr.; and J. R. Walker; Directors. It was decided to move the head offices of the company to Montreal, which has been done. The Head Office is now at 206 Read Bldg., Montreal.

Hon. John Sharples, senior member of the widely known timber firm of S. W. and J. Sharples, passed away recently at his home in Quebec city after an illness of some years. He was born in Quebec in 1847 and filled many positions of trust and honor during his career. He was called to the Executive Council of the Province of Quebec in 1893 to represent the Stadacona Division, and, at the time of his death was honorary President of the Union Bank.

The Bay of Quinte Wood Co. with a capital stock of $500,000 and head offices in Toronto has been incorporated. The incorporators are Charles E. Bailey, Percy C. Deeble, Allan Macnab Denovan, W. F. Greig and John Rigby, all of Toronto. The company have very wide powers under their charter among them being, to buy, sell, manufacture and deal in wood, timber and lumber of all kinds and to manufacture, generate and transit steam, gas, electricity, and hydraulic power.

W. P. Ryrie of the Becker Co. of America, Limited, has returned to Toronto from a visit to Vancouver, where he attended the thirteenth annual convention of the Great Priory of Knights Templar of which he has been Grand Master during the past two years. His successor is P. D. Gordon, a widely known lumberman of Montreal. Charles F. Mansell of Toronto, sales manager of the Toronto Paper Manufacturing Co., was re-elected Grand Treasurer, an office which he has capably filled for the past ten years.

The plan for the route of the new Welland ship canal from Port Colborne to the town of Thorold, Ontario, has been filed and very little additional property to that already owned by the government will be required for the enlarged waterway. The route of the Welland river will be followed for the new channel between Welland and Port Robinson being much straighter that the course of the stream, however. The widening will be made on the west side almost exclusively where the new canal follows the old canal route.

A. M. Huestis, paper mill representative, Toronto, is spending a holiday at Prout's Neck, Maine. J. L. McNicol, formerly superintendent of the Barber Paper Mill at Georgetown, Ontario, who recently returned from a trip to his old home in Scotland and has had an extended practical experience in the manufacture of paper of all kinds, has joined Mr. Huestis, who was, for several years, sales manager of the Canada Coating Mills, Georgetown. They have secured the agencies of several leading mills in Scotland, England and United States and have their offices in the Mail building, Toronto.

Messrs. Boving & Co., of Canada, Limited, are making many additions to their plant and are at present installing grinding machines to grind rolls up to 175" and 220". Mr. Leo Schlick the chief engineer, is now engaged on a design for a large automatically fed wood pulp grinder which will later be placed on the market. Messrs. Boving & Co. have had long experience in the building of pulp and paper mill machinery and have now secured the right to make the improved machines being manufactured by the Company's plants in Sweden and England. The English Company has offices in Japan, Egypt, Mexico and London.

CANADIAN MARKETS

Business conditions in the pulp and paper line are still dull in consonance with this period of the year. Of course most of the output of all the news print mills is taken care of by contract. Prices are easier and on new business quotations are a shade soft. In book and writing lines orders are small and some tall hustling is being done for business in order to keep the machines going. Some mills, which were two and three months behind hand with orders at this season in 1912 are now right up with all bookings and there is no great rush in production. While all machines are running it is doubtful if any are speeded up to anything like capacity. In manilla and fibre papers jobbers report that the market is fair but in kraft and paper bags there is much cutting in figures. In the latter discounts of 60, 10, 5 and 10 are being quoted in several cases off list prices. In ground wood pulp, conditions remain quiet and in the sulphite situation there is no change. In the rag and paper stock arena there is but little doing at present although, with the opening up of fall, trade matters are expected to pick up in some lines.

Quotations, f.o.b. Toronto, are:

Paper.

News (rolls) $41 to $44, delivered .
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $4 to $4.35.
Book paper (ton lots) No. 3, 4c. to 4½c.
Book paper (carload) No. 2, 4½c.
Book paper (ton lots) No. 2, 4½c. to 5¼c.
Book papers (carload) No. 1, 5c. to 6c.
Book papers (ton lots) No. 1, 5¼c. to 6½c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3 7-10c. to 4¾.

Pulp.

Ground wood (at mill), $16 to $17.
Ground wood, $22 to $24.50, delivered in United States.
Sulphite (unbleached), $45 to $46, delivered in Canada.
Sulphite (unbleached), $44 to $49, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $60 to $64, delivered in United States.

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft white shavings, $1.65 to $1.70.
No. 1 Mixed shavings, 60c.
White blanks, 97½c.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 80c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.10 to $1.15.
No. 1 print manillas, 65c.
Folded news, 45c.
Over issues, 50c.
No. 1 clean mixed paper, 30c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.75.
No. 1 white shirt cuttings, $5.
Blue overall cuttings, $3.50 to $3.62½.
Black overall cuttings, $1.65 to $1.75
Black linings, $1.65 to $1.75.
New light flannelettes, $5.00.
Ordinary satinets, 77¾c. to 80c.
Flock satinets, 90c.

Quotations, f.o.b. Montreal are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book, Carload lots, No. 1, 5¼c. to 6¼c.
Book, Broken lots, No. 1, 6¼c. to 6¾c.
Book, Carload lots, No. 2, 4¾c.
Book, Broken lots, No. 2, 5c. to 5½c.
Book, Carload lots, No. 3, 4⅛c. to 4½c.
Book, Broken lots, No. 3, 4¼c. to 4¾c.

Pulp.

Sulphite Easy Bleaching, $44 to $45 per ton.
News quality, Sulphite, $42 to $43 per ton.
Bleached Sulphite, $55 to $60 per ton.
Kraft Pulp, $36 to $40.
Ground Wood, No. 1, $15 to $16.
Ground Wood, No. 1, $22 to $24, delivered United States.

Wrappings.

Fibre, 4c. to 4¼c.
No. 1, manila, 3½c. to 4½c.
No. 2, manila, 3¾c. to 4c.
Kraft, 3¾c. to 4¼c.

Paper Stock.

No. 1 hard shavings, $1.90 to $1.95.
No. 1 soft white shavings, $1.60 to $1.75.
No. 2 soft white shavings, $1.15.
Mixed shavings, 50c. to 55c.
White blanks, 85c. to 90c.
Ledger, $1.15 to $1.25.
No. 1 book stock, 90c.
No. 2 book stock, 45c. to 55c.
Manila envelope cuttings, $1.05 to $1.10

NEW YORK MARKETS.

New York, N. Y., August 11, 1913.

The situation of the ground wood market is still rather acute, as the rains of the past fortnight have only brought partial relief. Pulp, therefore continues scarce, because those mills having any are either holding for higher prices or are connected directly with consuming sources. The reduced operations incident to the low water period are causing a gradual decrease in the available supply, and unless stocks are replenished very shortly an actual famine may result. Quite a few of the large consuming manufacturers have been seen in the local trade of late endeavoring to cover themselves for the next two or three months. The grinders that are represented here, however, are very firm in their price views, and though no confirmation can be had, it is stated by a responsible authority that premium prices have already been obtained.

Chemical pulps are moving slowly but steadily, although the chief movement in the local market is against existing contracts. A few orders have been placed during the interval for deliveries over 1914 at prevailing quotations, but the market is considered generally quiet at this period. Several of the prominent local manufacturers announced this week that they would allow their customers a benefit of ¼c. per pound on bleached sulphites and 1-6c. per pound on unbleached sulphites, when imported directly from Germany, Norway and Austria. This follows the instructions of the Treasury Department to hereafter enter pulp and paper shipments from these countries free of duty, as is done with such articles from Canada. One of the principal local importers stated to your correspondent this week that he was receiving comparatively few offerings for bleached sulphites and sulphates from the makers abroad, which indicates that they are pretty well sold ahead. On the other hand numerous requests are being received from the consumers of unbleached sulphites requesting the holding up of shipments, values in these grades are consequently inclined to be weak, though no price changes have so far been reported. Kraft pulps are in fair demand and most mills have a comfortable supply of orders on hand.

Waste papers reflect pretty much the same tone as was last reported. Prices are very weak in most all lines on account of the great dearth of orders and the rapidly accumulating stocks. It is stated by local packers that the demand for the better grades is less pronounced at present than it has been for any corresponding period for the past three or four years. Values during the past month have gone off considerably and packers appear willing to accept anything within reason to move their stocks. There is practically no movement of note in the common grades and in many cases packers are refusing stocks from the collectors.

Pulp.

Ground wood, No. 1, $18 to $21 per short ton, f.o.b. mill.
Ground wood, No. 2, $16 to $19 per short ton, f.o.b. mill.
Unbleached sulphite, domestic, $2.15c. to $2.30c., delivered
Unbleached sulphite from Germany, Norway and Austria, $1.88 1-3c. to $2.13 1-3c., ex dock, New York.
Unbleached sulphite, all other countries, $2.05c. to $2.30c., ex dock, New York.
Bleached Sulphite, domestic, $3.00c. to $3.15c., delivered.
Bleached Sulphite from Germany, Norway and Austria, $2.75c. to $3.00c., ex dock, New York.
Bleached Sulphite, all other countries, $3.00c. to $3.25c., ex dock, New York.
Easy Bleaching sulphite from Germany, Norway and Austria, $2.13 1-3c. to $2.28 1-3c., ex dock, New York.
Easy Bleaching Sulphite, all other countries, $2.30c. to $2.45c., ex dock, New York.
Unbleached sulphate, foreign, $1.90c. to $2.10c.
Bleached Sulphite, foreign, $2.60c. to 3c., ex dock, New York.
Kraft pulp, foreign, 2c. to $2.20c., ex dock, New York.
Soda Pulp, bleached, Domestic, $2.15c. to $2.35c., delivered.

PAPER

Traces of a little more activity were noted in some quarters of the local trade during the past week, but the general trend of the market still conforms to the season's smaller demands. The actual market situation is not materially different from a fortnight ago, except that the local paper men count themselves as one week nearer the starting of the fall business. That the amount of new business now coming from consuming sources is not more than sufficient to keep going on is what most dealers say, but they are doubly confident of the future. Just as soon as the "get busy" sign is restored to its former standing in other lines—and that time is evidently not far off—then things are expected to hum in the local field. Advices received this week by local manufacturers from the various quarters, in almost every instance indicates that business is of fair seasonable volumn, and in several cases in the middle west, trading is already showing some sign fo revival. Many of the mills throughout the country have closed down for a few days during the past fortnight for their annual repairs, and in consequence orders have accumulated in good volume. A careful canvas of the local manufacturers and distributors shows that news print is moving along steadily on contracts, but subject to competition for new business. Side runs are quiet but firm. Screenings are in good demand at full prices. Book papers are moving in sufficient volume to prevent any heavy accumulations or any reductions in prices. Writing, Bond, Linen and Ledger papers, while inclined to be quiet incident to this period, are being firmly maintained as far as prices are concerned. Manilas and Fibres are in fair inquiry, several of the mills reporting two to three weeks orders on hands, while others are not quite as fortunate. Krafts reflects pretty much the same condition. Tissues, though quiet, are being firmly maintained as manufacturers realize the futility of the cut-throat methods of selling that has ensued for so long. The board manufacturers are fairly busy for this period and the majority of the mills are running on a good basis.

THE BRITISH MARKETS.

(Special to The Pulp and Paper Magazine.)

London, August 4, 1913.

There is a very fair exchange of business prevailing just now in the British paper industry and the gradual increase in prices for fine grades and high-class papers has become general. The demand, owing to the holidays, is reducing stocks in warehouses and at the mills, and manufacturers are getting things into "Ship-shape" after the arduous task of stock-taking, which usually throws the paper-stock supplies very slack at this time of the year. Though the volume of business is not very great from a monetary point of view, it is quite sufficient to keep the machinery at the mills going steadily and manufacturers are well satisfied until the holiday season expires. The London County Council gave out some orders for papers recently amounting to $13,464 and the government stationery department also lodged some good orders at both the hand-made and machine-made paper mills throughout England and Scotland. So taking everything on the whole the mill men cannot complain and if work goes on at the rate it is going at present the next couple of months should create a good demand for pulp. Newsprint also appears to be consumed in large quantities now and the publishing houses are also on a busy scale with fine printings and other grades of paper appertaining to their liue,

* * * *

Mechanical pulp continues on the weak side and agents complain that notwithstanding the low prices buyers are reluctant to do business as the belief is current that prices will go to a lower level. Quotations are about as follows just now:—

Pine, 50% moist, prompt..............	$ 9.50 to $ 9.60
Pine, dry, prompt......................	$21.10 to $22.00

* * * *

Sulphite and Sulphate are very firm. Only very small parcels are exchanging hands. The producers are holding out for high prices and standing firm, whilst intending buyers are seeking low quotations and adopting a wait-and-see policy to await events. Large shipments continue to arrive on contract and stocks at the mills are not very low. Quotations are about as follows:—

Sulphite Bleached	$55.10 to $56.00
Sulphite Easy Bleached (1st quality)	$48.00 to $.....
Sulphite "News" (strong quality)	$49.00 to $50.00
Soda Unbleached (1st quality)	$49.10 to $50.20
Soda Kraft	$38.00 to $39.00

* * * *

There is a good demand in the chemical trade but prices are unchanged. Bleaching Powder is $25 in softwood casks f.o.b. at the works; Caustic Soda $48.60; Ammonia Alkali, 58 per cent., $16 to $17.20 and Saltcake $10.

* * * *

The market for Esparto is dull, but quotations are unchanged. Heavy shipments are arriving in England from the various sources of supply. The British Consul in Almeria and adjoining districts complains of the practice of pulling up the roots of Esparto grass, but says the use of a hook in one or two instances might be the means of rectifying the grievance in the future.

* * * *

China Clay continues in good demand and producers are deluged with orders. The labour troubles in this line are being gradually settled, but so far nothing serious in the way of strikes has occurred.

U. S. PRINT PAPER FOR JUNE.

Importations into the United States during the month of June, 1913, of Printing Paper suitable for books and newspapers were as follows:—

Reported from Italy	26,013 lbs.
Reported from England	301,160 lbs.
Reported from Germany	95,006 lbs.
Reported from Canada	34,906,711 lbs.
Reported from Sweden	22,380 lbs.
Reported from Norway	8,368 lbs.
Reported from Netherlands	316,326 lbs.
Reported from Scotland	35,211 lbs.
Reported from Austria-Hungary	392 lbs.
Reported from France	9,508 lbs.
	35,721,075 lbs.

From the values reported it is apparent that the only paper valued at 2¼c. or less was imported from Canada and Norway, of which 79% came in free of duty.

Importations of Printing Paper from Canada.

(For first six months of 1913).

1913	Total	Free of Duty	Subject to duty
January	24,662,307 lbs.	21,372,940 lbs.	3,289,367 lbs.
February	25,338,071 lbs.	22,418,768 lbs.	2,919,303 lbs.
March	30,635,635 lbs.	24,571,688 lbs.	6,063,947 lbs.
April	33,483,681 lbs.	26,391,477 lbs.	7,092,204 lbs.
May	32,330,619 lbs.	27,124,765 lbs.	5,205,854 lbs.
June	34,906,711 lbs.	27,182,466 lbs.	7,724,245 lbs.
	181,357,024 lbs.	149,062,104lbs.	32,294,920 lbs.
For same period, 1912.	57,194,700 lbs.	39,567,485 lbs.	17,627,215 lbs.

566 tons per day during month of June.

Imports of Wood Pulp into the United States. during the month of June, 1913.

Countries	Mechanically Ground Tons	Chemical Unbleached Tons	Chemical Bleached. Tons
Russia in Europe	....	87	....
Austria-Hungary	....	876	52
Germany	11	4708	1147
Norway	.....	1416	2957
Finland	....	224	......
Sweden	.....	8676	300
Canada	12783	4737	329
France	......	56	......
Total	12794	20780	4785

Monthly importations for the six months ending June 30, 1913.

1913	Mechanically Ground Tons	Chemical Unbleached Tons	Chemical Bleached Tons
January	13,985	25 696	5,222
February	8,586	32,459	9,870
March	9,042	23,984	6,963
April	10,429	20,787	7,251
May	9,945	23,861	9,120
June	12,794	20,780	4,785
	64,781	147,567	43,211
For the same period in 1912	65,802	125,424	38,522

NEW ISSUE OF BRITISH CANADIAN LUMBER CORPORATION.

Shareholders of this corporation in England have been circularized by the directors, with a view to obtaining their support in connection with a proposed issue of $3,500,000 of bonds, required to complete certain construction work. The Canadian Gazette comments on this circular as follows:

"The directors of this company have circularized the shareholders with a view to obtaining their support and sanction in connection with a proposed issue of $3,500,000 of bonds, required, it is stated, to complete certain construction work, and for the general purposes of the undertaking. Estimates which have been prepared show that under certain conditions a surplus of $210,000 could be earned after meeting interest on the bonds and paying the preference dividend. No indication is given, however, as to the actual position at present, and this has been a source of considerable comment, it being felt that some statement on this important point ought to have been forthcoming. The results obtained during 1912 did not justify the board in paying the preference dividend, which was accordingly postponed, and, in making that announcement, the directors expressed the opinion that much better things might be looked for "when the several plants are working to their full capacity." Under the terms on which the preference shares were placed no bonds can be created without the definite consent of 73 per cent. of the preference shareholders, and the board are now making efforts to obtain this support. It would have been better, however, if the directors, when they started trying to gain this consent, had issued a supplementary statement giving further details of the existing state of affairs, and if they are wise they will do this. An emission of loan capital could, we imagine, only be placed among the existing proprietors, in the present state of the money market, and the board have consequently nothing whatever to gain by withholding information from those to whom they are looking for support; on the contrary, their very reticence has, as we have already said, created a feeling of uneasiness, which is not only unnecessary, but may easily prove harmful to the best interests of the undertaking. We trust, therefore, that the directors will without delay prepare a statement showing the results obtained during the first half of 1913, and giving the cash position as at June 30 last.

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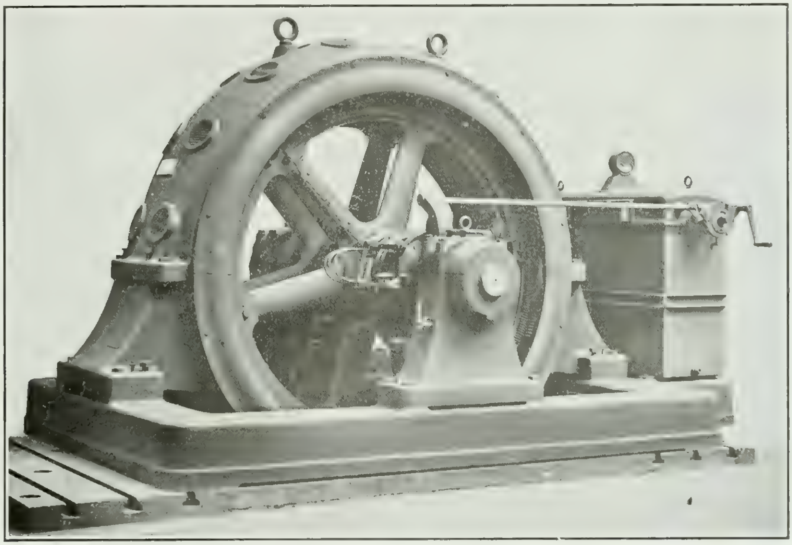

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1-1320 H.P. Dominion Coal Company
2- 750 H.P. Winnipeg
2- 750 H.P. Port Arthur
1- 670 Nipissing Mining Company
1-540 H.P. Lethbridge
1-490 H.P. Dominion Coal Company
1-430 H.P. Acadia Coal Company
1-425 H.P. Edmonton
1-400 H.P. Dominion Coal Company
1-385 H.P. Nova Scotia Steel & Coal Co.
1-375 H.P. Canada Sugar Refining Co.
1-320 H.P. Acadia Coal Company
3-275 H.P. Port Arthur
1-275 H.P. Robert Simpson Co., Toront
1-270 H.P. Lethbridge
1-150 H.P. Nova Scotia Steel & Coal Co.
2-150 H.P. Acadia Coal Company
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TREATMENT OF CHROMO PAPER BEFORE PRINTING.

When a consignment of chromo paper comes to the printing works, it must be stocked between smooth boards in piles of 400 sheets each, in a room close handy to the printing room. Each pile should be turned over in lots of 40 or 50 sheets every day or two before it is used, to air it properly. Hygrometers should always be provided in the stock-room, and also in the printing-room, so that the amount of moisture in the air can be seen at a glance. If the air is too dry—a circumstance likely to occur in very cold winter weather—water should be sprinkled on the floor to damp the atmosphere. Two days before a batch is taken for printing, the chromo sheets should be interleaved, sheet by sheet, with another paper in sheets not much larger than the others. This saves running the papers damp through the press. Of course, coloured papers are varnished first.

The sheets used for interleaving the chromo paper are piled up under smooth boards for further use. The upper board should be loaded.

During printing the amount of moisture in the air must be watched by means of the hygrometer. so that it can be kept at the proper degree of hygroscopity by blowing in steam or otherwise.

Paper with gold printing is usually calendered. The steel rollers of the calender should be heatable and coolable, for else they are cold in the morning, and the sheets that go through them become larger. Two hours later the rollers are warm, and the sheet gets smaller.

In a properly arranged printing works, a small calender with steel rollers that can be heated or cooled at will is indispensible.—Papier Zeitung.

THE TREATMENT OF THE WET-FELT IN CYLINDER MOULDS.

Cylinder-moulds are frequently used in small mills and entrusted to persons having very little experience. If, in such cases, also the control by the mill manager is not very severe, the consumption of felt for these cylinder-moulds may be very considerable. The felt is worn most in the felt-washer, in which a drum fitted with laths strikes against the felt, while the latter is being irrigated with water from a shower-pipe. The wear of the felt will be the greater, the drier the felt, and the rougher the edges of the laths. Preferably metallic rods are substituted for the wooden laths, and these rods are revolubly arranged in the arms of the drum. Brass tubing may also be used in place of such rods, the pieces of tubing fitted revolubly between the arms of the drum. These tubes or rods will not shave off the nap from the felt, but will glide revolvingly over the felt, and nevertheless exert a sufficiently strong blow. Another cause for the rapid wear of the felt may be that the couch-roll is wrapped too loosely or loaded too heavily; the edges of the cylinder mould will then cut into the felt, which will, at these points, quickly lose its nap or even tear. For avoiding this preferably a hard wound couch-roll is employed, or the latter is covered with a jacket and, if necessary, the load on the couch-roll is reduced. Guide-rolls made of wood with felt strips nailed on in form of spirals are dangerous for the felt, as the nails will appear sooner or later, and as these rolls rarely run quite true. It will always be best to use a brass roll on which brass wire is brazed in form of spirals. The cleaning of the felt is, further, greatly improved if it is submitted to the jet of water from a shower pipe as soon as it has delivered the pulp to the gatherer. For cleaning the felt, also elastic wooden sticks may be used in place of the above described lath-drum, which sticks are lifted by eccentrics, and on being released by the same strike against the felt; for this the felt must travel in a vertical direction and be abundantly irrigated with water. Reeds or hazle-sticks, free of knots are best suited for this purpose. Another feature, which is important for the preserving of the felt is its contents of water on arriving on the cylinder mould; therefore the proper attention should be paid to the two rolls, which press the water from the felt after the washing, and it will be found of advantage to use small rubber rolls here, particularly if fine pasteboards are to be made.

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SHIFTING OF THE SULPHATE INDUSTRY

Recent developments in the United States have been most interesting in the advance of the sulphate processes in the Southern States. Mr. McGarvey Cline while director of the Forest Products Laboratory at Madison, Wis., thoroughly investigated the possibilities of sulphate pulp manufacture, using the southern pines as a raw material. The result of this investigation has demonstrated that advantages in that district go to prove that the sulphate industry of the United States will shift to that centre. Whether or not this will materially affect Canada is doubtful, except in so far as it will provide a stiff competitor in the markets of the United States for our kraft and sulphate papers. This, however, at the present juncture does not seem to be of material importance since the new American tariff has imposed against our wrapping paper industry a duty of 25 per cent. which practically eliminates our competition in their markets for all except the very highest grades, unless special, abnormal conditions arise.

At the present time there has been organized one very large company to build a large mill at Jacksonville, Fla. It is also known that this is but an entering wedge for a large number of similar exploitations. Mr. Cline, who has been the leader in developing this wood as a raw material for paper making, will have charge of this plant, having left the government service.

It has been found that by cooking the pine by the sulphate process there can be recovered two gallons of turpentine per cord of wood, cooking a very short cook, and have a yield of pulp in the vicinity of 1,800 pounds per cord, or about 60 per cent. of the dry weight of the wood. This is, of course, very much larger than any yields which can be obtained under this or other processes using spruce, or any of our native woods. The fibre is long, strong and in every way a perfect fibre for wrapping paper.

On the raw material side of the question, they have a decided advantage in their supply which is inexhaustable. The custom is to cut wood in the vicinity of 24 inches or lower which, owing to the more rapid growth in that district, will renew itself in 30 years. Thus the supply is practically inexhaustable and is also provided at the mill at a cost of $3 per cord. In addition to this fact the mills have also excellent transportation facilities by rail and by water to the New England markets. The proposition is the most promising development which offers in the United States in pulp and paper. The results have been most interesting and the predictions are almost alarming for there is no doubt but that the centre of that branch of the industry will rapidly be transferred to the southeastern corner of the country, which goes to prove the fact, frequently asserted, that spruce being the ideal paper-making fibre is especially adapted to the sulphite and groundwood manufacture, in view of these facts, it is extremely doubtful if under ordinary conditions it will be advisable to have any further sulphate developments. In Canada; certainly not for some years since we have at present a slight over-production.

MILL WASTE FOR NEW INDUSTRIES

One familiar with the practice of the Canadian lumber and pulp mills will be stuck with the gross waste, which in most or many cases is being practiced, when they see how much of this can be eliminated or utilized as is being done by by many of the more progressive manufacturers in similar lines in the United States. Doubtless much of their efficiency in this regard has been forced upon them by keener domestic competition and foreign rivalry, affected partly by the supply of raw materials, and, to a lesser extent, by tariff changes.

There are being built up at the present time in the United States a number of young and thriving industries which are using the waste from the larger enterprises in the manufacture of forest products. This is a question which every man in this line can well afford to give consideration and attention; indeed all but the smallest mills could benefit by employing a man under the title of so-called "efficiency engineer," or a chemist "with ideas," who would do nothing but eliminate waste and find a market for what is now sold at low prices or entirely lost.

One can hardly realize what possibilities lie in this direction unless they have seen the tendency of many more progressive in the same line. New patents are continually being granted, some of which are good, and many of which are useless, but all of which are worth investigating as a means of better utilizing our lower grades of stock or our waste material.

Woods which were once regarded as hopeless, from the paper maker's point of view, are rapidly assuming an important position. Many other indications point to the fact that our industries are rapidly advancing from a technical point of view and that the biggest dividends are being paid by those who are closest to this progress.

In the field of fibre products alone there are unlimited opportunities for specialties for which there is a ready market or for which a larger market can be easily developed. The physical properties of wood fibre lend themselves especially to the manufacture of a number of lines for which no other material available is so well adapted. The insulating properties, conductivity of heat, elasticity or other qualities, singly or in combination, may be made the basis of important developments.

It is not entirely the duty of the technical men or the government institutions to investigate these possibilities but it is an obligation on every individual deriving a living from this branch of the industry to use his efforts to improve many of the defects of technique to his own advantage and in the interest of world-wide progress.

BRIGHTENING UP

We are pleased to record that sentiment among the business interests has become much more optimistic in the last couple of weeks over the financial situation. We have reports from all sides that the dullness which has characterized the last months has given place to a more hopeful outlook. The grouchers who have predicted further depression and continued stringency are fortunately disappointed. Everything indicates that the turning point has been passed. With careful and sound attention, and further care the crisis may be considered over.

Stocks are moving up slowly but satisfactorily and money seems to be loosening up in the most encouraging manner. Orders are being booked by wholesale houses and every indication which we are accustomed to look to as an index of prosperity shows the stirrings of better times.

A New York paper recently commented in an editorial as follows:

"The invasion is on. The buyers are coming, in ones and twos and scores, ten thousand of them, from all parts of the country, from other lands, from everywhere.

"Go to Broadway. The buyers are swarming in and out of the great wholesale houses. Go to the hotels; there they are, a dozen, a hundred, five hundred in one of the big hostelries.

" 'What of the times?' you ask them. And the answer is that there's prosperity everywhere. But there is the tariff unsettled, the currency problem muddled.

"Still the answer is that prosperity abounds in spite of these deterrent factors.

" 'The people want goods and have money to pay for them, and we are here to get them,' was the answer of one of the buyers who estimated that the interior would take a hundred million dollars' worth of goods from New York for the fall trade.

"None except bankers are as close to the financial pulse of the people as the merchants, and when their buyers come in droves to tax the looms of industry, isn't it about time to cheer up?"

This shows that our southern neighbors, who are accustomed to show the change from the bright to the dull industrial life more rapidly than any other people, have a hopeful outlook. People do not buy goods without money. The fact that the wholesale centres of the big retail trade have taken on their full measure of usual activity must show us that we are moving up.

Let us all be optimistic and help along the onward march toward normal prosperity and progress.

PARTICIPATION IN STOCK

The vexing question which has excited the attention of many of our best financiers, and is now before a number of our large Canadian companies, is the advisability of making satisfactory arrangements whereby employees of a company may take out small shares of stock in their company or participate in its organic life in some tangible way. There are a number of glaring examples where this has been attempted on a more or less elaborate and well-thought-out basis. Up to date, however, but few of these arrangements have worked out to the satisfaction of the employees, and practically none have fulfilled the hopes of their originators.

Probably the most glaring instance in the United States was that of the Steel Corporation when the employees took stock under the statement of the officials that it was bound to rise, but when it went the other way they suffered and the usual cry of its being manipulated went up with a loud voice.

A few of our Canadian paper companies have tried a similar scheme but it is always most difficult to work it out on a satisfactory basis.

An employee who buys stock on a more favorable basis than others is solely tempted when needing the money to sell out and pocket the margin. This, of course, is not the idea of the company but it is very difficult to prevent without inherent restrictions which make the employee dissatisfied.

One or two of our companies are proposing a new basis, under an arrangement with the banks, whereby the employee takes stock yielding from 6 to 15 per cent., then he can take this to a specified bank and borrow a large percentage of its value, say 80 per cent., at 5 per cent. interest. This makes it elastic enough to provide for temporary stringencies but still leaves him the margin of profit on his stock which can not be sold out entirely except to an employee, and on discharge from the firm reverts to the company.

This basis has not been fully tried but it seems to be one of the most promising solutions of this most difficult problem. One thing is certain that any company with such inclinations is most unwise to establish a policy on the ideas of one man, even though that man may be the president, or until this policy has been thoroughly investigated and until one has become familiar with the failures and successes of similar attempts of which there has been a large number. Extreme caution is the only afeguard in handling these doubtful proposals.

WEAKNESS IN SPANISH RIVER

The weakness in Spanish River Stock has caused a good deal of uneasiness on the "Street." The Pulp and Paper Industry has made such phenomenal strides in recent years that in some unaccountable way the public believed that all paper stocks were gilt-edge. Spanish River securities placed on the market about two years ago gave promise of becoming a profitable industrial enterprise. Before the company had really an opportunity to show what it could do, it absorbed the Ontario Pulp and Paper Co. and later on formed an amalgamation with the Lake Superior Pulp and Paper Co. The necessity of issuing additional capital and financing these mergers taxed the resources of the Spanish River Co. to the utmost. In addition to that, the markets have not been as satisfactory as the promoters were led to expect and the company has been forced to dispose of lumber to augment its revenues from pulp and paper. To add to the complications, there are certain internal troubles taking place and as a result some of the directors are entering suit against one of their associates. It is also believed that some of the insiders are disposing of their holdings. The company have excellent limits, have an up-to-date plant, good shipping facilities and large markets and if given an opportunity would have made good. It is probable that an improvement will take place when the present financial situation clears.

The first meeting of the reorganized board of the Spanish River Pulp and Paper Mills, Limited, was held in Toronto on August 20th, and the following officers were elected: T. H. Watson, president and managing director; J. Frater Taylor, vice-president; W. E. Stavert, vice-president; R. J. Ward, Secretary, with the following board; G. P. Grant, R. A. Lyon, R. L. Innes, H. E. Talbot, and W. K. Whigham and F. S. Szarvasy of London, England.

After the meeting it was stated that the company having assumed such large proportions and the duties of the president becoming so onerous, Mr. Grant had asked to be relieved from that office. It was decided that the office of president and that of managing director should be consolidated and Mr. Watson, who has been vice-president and managing director was elected to the new position and will in the future devote his entire tme to the interests of the company.—Journal of Commerce, Montreal.

U.S. GEOLOGICAL SURVEY REPORT.

(Special to Pulp and Paper Magazine.)

Washington, D.C., Aug. 27, 1913.

The United States Geological Survey has issued a report showing the 1912 sulphur production of continental United States to be 305,472 tons, valued at $5,256,422. The production in 1911 was 265,664 tons, with a total value of $4,787,049. The greatest event in the sulphur innustry of the world in 1912, according to the report, was the opening of the Texas mines, near Freeport, last November. These mines are owned by the New York banking firm of S. M. Swenson & Sons and associates, and are now in constant operation. The report advances the prediction that with the opening of the Panama Canal United States sulphur will replace the foreign product in the trade of the Pacific Coast. Japan has heretofore handled the bulk of this trade, having furnished 91 per cent. of the total imports into this country last year.

THE GRINDING OF SPRUCE FOR MECHANICAL PULP*

By J. H. THICKENS

Chemical Engineer in Forest Products

(concluded from last issue)

Peripheral Speed of Stone.

In most commercial plants the peripheral speed of stone is given little attention, and perhaps rightly so. When the pressure on a pocket of the grinder is removed the speed will increase greatly unless controlled by a governor. The effect of this increased speed is generally more beneficial than otherwise, since it prevents, to some extent, a decrease in the production of pulp with the smaller number of pockets in operation. There are conditions of operation which require a fairly constant speed, and the use of a governor is therefore desirable, especially when the peripheral speed is high. It is easy to see that the removal of the pressure from a pocket, especially if a very high one were being carried, might so relieve the stone that the speed would increase to a dangerous degree. However, stones are generally operated considerably below their bursting speeds.

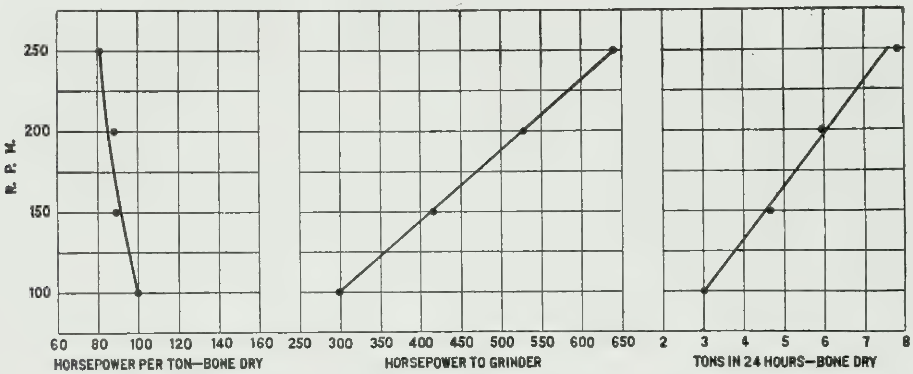

Fig. 12.—Relation of power consumption and rate of production to speed at 60 pounds pressure

Influence on the Power Consumption and Rate of Production.

Figure 12 shows that the power to the grinder varies directly with the speed, as does also the production in 24 hours, but to a greater extent. This results in a lower power consumption per ton with increase of speed. In these tests the pressure was maintained constant.

In the tests plotted in figure 13 the power to the grinder was maintained as nearly constant as possible, and both the pressure and speed were varied, though so adjusted as to utilize the power in each case. With constant power to the grinder the production in 24 hours is practically constant, regardless of whether the pulp is produced at low pressure and high speed or at high pressure and low speed, although there seems to be a very slight decrease in the production at low speed and high pressure. This effect is seen more clearly in the curve for horsepower per ton. While the power consumption per ton of pulp is practically constant, there is a slight increase as the pressure increases and the speed decreases. In commercial practice the grinders ordinarily receive a certain amount of power direct, and it was thought that pressure and speed could be so combined as to secure a maximum production of pulp from the power supplied to the grinder. This, however, did not prove to be the case, since in the range covered in the tests the production was practically constant.

Influence on Yield and Quality.

The yield per cord and quality of pulp are only slightly influenced by the speed. The yield appears to be somewhat higher with high speed; the difference, however, is small. The quality as determined by strength tests of the papers is not influenced so much by speed as by pressure of grinding. There is, however, an increase of strength with decrease of speed.

The relation of speed and of pressure to strength by Mullen test in points per pound is shown in figure 14. The tests on which this curve is based are the same as those shown in figure 13. The strength of the paper is greater, the power to the grinder being constant, when the pulp is produced at high pressure and low speed than when it is produced at low pressure and high speed.

Temperature and Thickness of Stock in the Grinder Pit.

The effect of the temperature at which mechanical pulp is produced has long been the cause of a difference of opinion between American and European manufacturers. American paper-making practice requires in almost all cases the production of ground wood at high temperature, and it is claimed that pulp so produced has stronger and longer fibers and is considerably tougher than cold ground pulp and works "freer" on the machine. On the other hand, it is claimed that cold-ground pulp is finer, freer from shives, that it gives a better "closed" sheet of paper, and has greater opacity than hot-ground pulp. These points, however, are difficult to prove or disprove. A number of tests were run to determine the effect of cold grinding upon factors of economic production, but most of the experiments were made by the hot-grinding process.

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* Reprinted from a bulletin of the Forests Products Laboratory of the United States Forest Service.

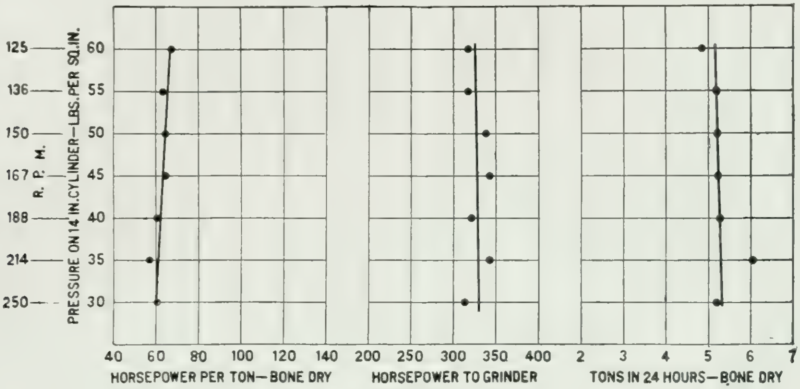


Fig. 13—Relation of power consumption and rate of production to pressure and speed; 330 horsepower to grinder

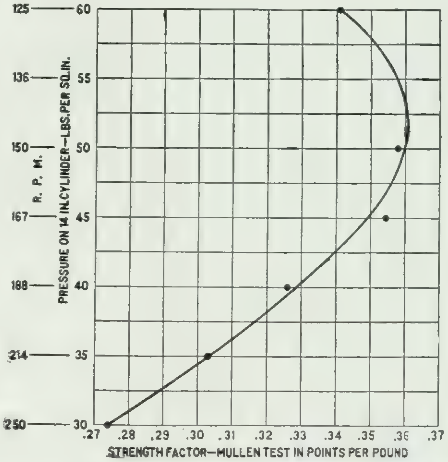


Fig. 14—Relation of strength factor to speed and pressure: 330 horsepower to grinder (Runs Nos. 32 to 38, inclusive

The thickness of pulp in the grinder pit is another factor which is claimed to have an important influence on the paper produced. Many manufacturers run their pulp extremely thick, while others run it comparatively thin. Some claim that a stone will not clean itself unless the stock is very thick, and that, as a result, there will be more or less regrinding of the pulp with thin stock. The tests discussed in this report were conducted, for the most part, with thick stock in the grinder pit.

Influence on Power Consumption and Rate of Production.

The results show that varying the temperature from cold to hot has little effect upon the power consumption or power to grinder, but the production in 24 hours is somewhat higher under conditions of hot grinding. The table gives the amount of power required to rotate the grinder at various speeds without load, but with stock of different consistency in the grinder pit. To overcome the friction of the pulp and bearings of the grinder when a thick stock was employed, from 12.4 to 18.7 kilowatts were required; with a very thin stock in the grinder pit from 2.7 to 10 kilowatts were needed. A maximum difference of 14.5 kilowatts between the power required for thick and for thin stock in the grinder pit occurred at 175

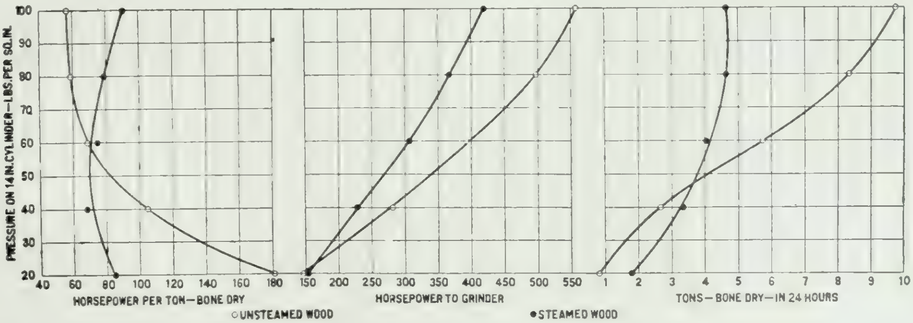


Fig. 15—Comparison of variation of power consumption and rate of production with pressure at 225 r. p. m., steamed and unsteamed wood

revolutions per minute. This amount of power, when calculated to the basis of power consumption per ton of pulp, becomes negligible.

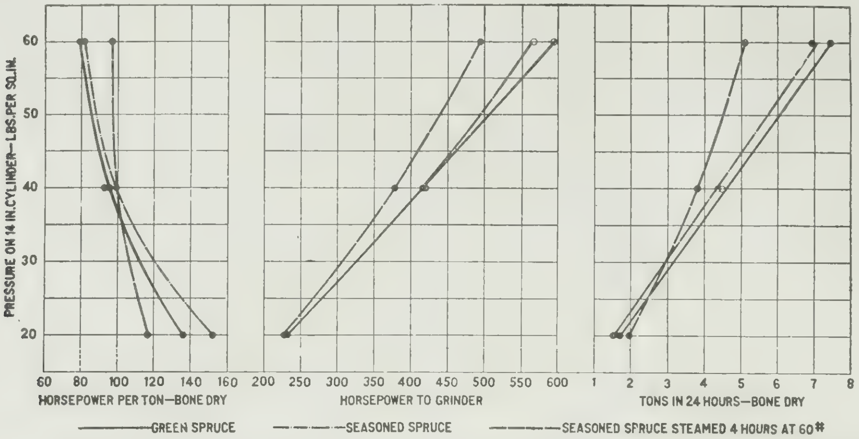


Fig 16 Comparison of variation of power consumption and rate of production with pressure at 225 r p m, green, seasoned, and steamed wood

Power to the grinder in kilowatts at different speeds, without load, with thick and thin stock in the pit.

Condition of stock.	Power to grinder.			
Revolutions of stone per minute	100 Kilo-watts.	125 Kilo-watts.	150 Kilo-watts.	175 Kilo-watts.
Thick........	12.4	14.9	16.3	18.7
Thin	2.7	3.4	3.1	4.2
Difference...........	9.9	11.5	13.2	14.5
Revolutions of stone per minute		200	225	250
Thick .		14.0	14.0	15.3
Thin.........................		6.0	8.0	10.0
Difference..................		8.0	6.0	5.3

Influence on Yield and Quality.

The temperature of grinding and thickness of stock in the grinder pit do not influence the yield per cord of wood. The quality of pulp, however, is affected. The pulp produced at high temperature is long fibered, while a fine-fibered pulp is more easily secured by the cold-grinding process. It appears that the temperature has very little influence on the properties determined by these tests.

Physical Condition of the Wood.

The question of the influence of the physical condition of the wood is a very important one. Wood for pulp is almost invariably allowed to season for a long period before it is used, and as a result there is considerable loss due to rotting, and the wood becomes darker in color. It is more difficult to secure a long-fibered pulp from wood which has been seasoned for a long period than from green material. The treatment of wood by steaming, boiling, or some similar process prior to grinding is important, because by such treatment better fibers can be obtained than when woods are ground without treatment. This makes possible the use of woods which, if ground in the natural state, would yield very short-fibered pulps. In this way, too, ptchy woods can be made usable by the mechanical process.

In commercial practice if often happens that wood is ponded for a lont time before it is ground. Unfortunately, wood of this kind was not available for test.

Influence on Power Consumption and Rate of Production.

It was shown in figure 9 that when the wood has been steamed prior to grinding for six hours at a steam pressure of 60 pounds per square inch, the horsepower consumption per ton varied but slightly with variation in pressure. There is a decided contrast, however, in the forms of the curves of power consumption and rate of production obtained on untreated and steamed wood, as may be seen in figure 15.

The relation of the pressure on the grinder cylinders to the horsepower consumption per ton, horsepower to grinder, and the production in 24 hours, when green, seasoned, and steamed woods were ground is shown in figure 16. At low pressures the power consumption per ton of pulp is higher for seasoned wood than for steamed wood, while at high pressures the reverse is true. For green wood the average power consumption is lower than for either seasoned or steamed material. The power to the grinder for either seasoned or green wood under like conditions of speed and pressure is practically the same, but it is less for steamed wood. This is due, undoubtedly, to the more slippery condition of the steamed material. The rate of production of pulp from green wood is more rapid than from either seasoned or steamed wood.

Influence on Yield and Quality.

Figure 17 shows graphically the weight per cubic foot of various woods and the yields secured from them under like conditions. The woods tested had been steamed for a period of six hours at a pressure of 60 pounds. The species, with numbers corresponding to those in the figure, were:

1. Western yellow pine (Pinus ponderosa).
2. Lodgepole pine, Montana (Pinus contorta).
3. Western larch (Larix occidentalis).
4. Lodgepole pine, California (Pinus contorta).
5. White spruce (Picea canadensis), normal growth.

6. Red fir (Abies magnifica).
7. Aspen (Populus tremuloides). (Poplar).
8. Balsam fir (Abies balsamea).
9. Jack pine (Pinus divaricata).
10. Hemlock (Tsuga canadensis).
11. Tamarack (Larix laricina).
12. Paper brich (Betula papyrifera). White Birch).
13. Sitka spruce (Picea sitchensis).
14. Western hemlock (Tsuga heterophylla).
15. White spruce (Picea canadensis), rapid growth.

The yields are almost directly proportional to the bone-dry weight of the wood per cubic foot. In the same figure the relation between yield and dry weight is shown when unsteamed wood was used. In this case also the two factors vary directly.

The yield of pulp per 100 cubic feet of solid wood appears to be approximately the same from seasoned and green wood. It is very probably, however, that on the basis of a cord of rough wood, the yield would be smaller for seasoned material on account of the decayed portions. The yield of pulp from steamed wood is a great deal lower than from seasoned or green material. This may be due to the solvent action of hot water on wood, and the assumption is strengthened by the fact that the yield becomes less as the treatment is prolonged or the steaming pressure raised. The relation between yield and duration of treatment is shown in figure 18. It is probable also that the yield from ponded wood is lower than from dry or green wood, on account of the dissolving action of the water.

The quality of the pulp does not seem to be influenced greatly by the moisture content of the wood or weight per cubic foot. However, by treating the wood prior to grinding the strength is much increased and the color darkened. Therefore, when strength is the important factor steaming prior to grinding raises the quality of the pulp, but when light color is one of the chief considerations the quality is greatly lowered.

OTHER FACTORS.

Power Consumption per Unit of Strength.

Figure 19 shows the effect of the consumption of different amounts of power on the strength of paper made from the experimental pulps. It is evident that, under the present methods of manufacturing mechanical pulp, the utilization of a considerable amount of power is necessary to obtain a strong paper. The paper increases in both tensile and bursting strength with the power consumption, although not uniformly. The indications are that a maximum value of strength will be obtained at some value of power consumption, and that above this value the strength will decrease.

A factor of great importance in commercial manufacture is the power consumption per ton per meter of breaking length of paper, or, as it might also be expressed, the power consumption per ton, per point, per pound test. By dividing values of power (fig. 19) by the corresponding values of strength, results are obtained which indicate that for each horsepower expended in the manufacture of pulp at low-power consumption a greater degree of strength is obtained in the resultant paper than for a horsepower expended under conditions of high-power consumption. This fact suggests that maximum efficiency in the production of a mixed ground wood and suphite paper of a given strength requires the proper adjustment of both the power consumption of the grinder and percentage of sulphite in the mixture. For instance, it might be desirable to use a small amount of power per ton of pulp and a relatively high proportion of sulphite, rather than a higher power consumption and lower proportion of sulphite. The proper adjustment would depend, of course, on the relative value of ground wood produced by high and low power and sulphite fiber.

Size of Bolts and Rate of Growth.

The diameter and rate of growth of the wood have very little effect upon either the power consumption or rate of production. The rate of production decreases slightly when wood of medium diameter (6 to 8 inches) is used. This is due to the fact that in order to fill the pockets some of the wood must be split, which causes more or less binding.

The yield and quality are both influenced by the rate of

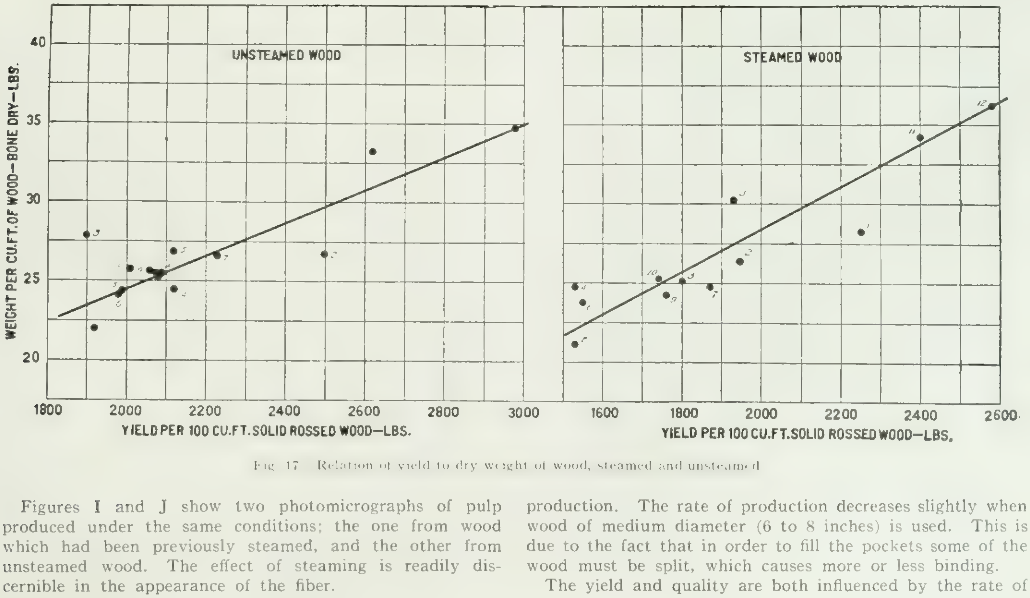


Fig. 17. Relation of yield to dry weight of wood, steamed and unsteamed.

Figures I and J show two photomicrographs of pulp produced under the same conditions; the one from wood which had been previously steamed, and the other from unsteamed wood. The effect of steaming is readily discernible in the appearance of the fiber.

growth of the wood. The yield is considerably lower from wood of rapid growth than from wood which has grown slowly. The pulp is softer when rapid-growth wood is used, although the strength is practically the same.

Efficiency of Conversion.

The efficiency of converting rossed wood into pulp under ordinary commercial conditions averages approximately 88 per cent. This leaves 12 per cent. of the weight of the wood to be accounted for in either screenings or white-water, or as water-soluble material. From about 2 to 7 per cent. is lost in screenings and white-water as wood fiber; the remainder, 5 to 10 per cent., must be in the white-water as soluble or insoluble organic or inorganic materials. The wood when ground is in a very finely divided state and may be acted upon quite readily by the water with which it is mixed. It is reasonable to suppose that the dissolved portion would be greater under conditions of extremely hot grinding than when the cold-grinding process is used. Likewise, there would be a greater loss when the pulp remains in contact with water for a considerable period than there would be if it were immediately run out on the wet machine.

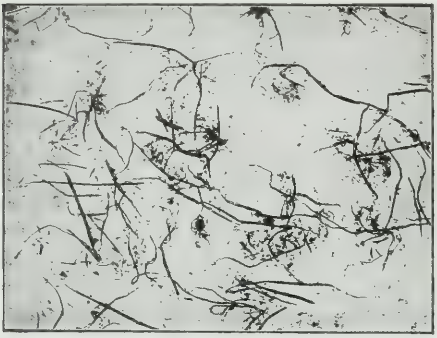


Fig. I.—Steamed Wood, 220 Horsepower per Ton.

COMPARISON OF SPRUCE PULPS MADE FROM STEAMED AND UNSTEAMED WOODS (Magnified 15 diameters)

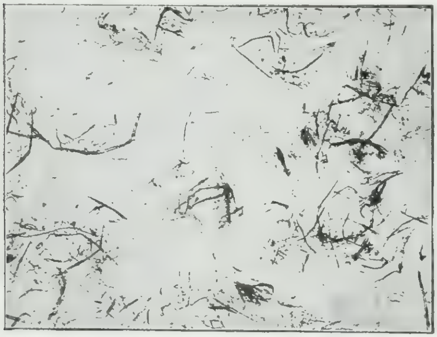


Fig. J.—Unsteamed Wood, 89.9 Horsepower per Ton.

COMPARISON OF SPRUCE PULPS MADE FROM STEAMED AND UNSTEAMED WOODS (Magnified 15 diameters)

Conclusions.

From the results of the experiments the following general conclusions are drawn:

(1) The power to grinder increases with speed and pressure of grinding and decreases with the degree of sharpness of stone. There is also a very slight increase in the power required with increase of temperature, other conditions remaining constant, while the thickness of stock in the grinder pit has almost no influence. With all other conditions similar the power to the grinder is less for steamed wood than for green or seasoned wood untreated.

(2) The rate of production varies directly with pressure, speed, and degree of sharpness of the stone. Less pulp is obtained in 24 hours with seasoned wood than with green, and still less with steamed wood, all other conditions being the same. The temperature and thickness of stock in the grinder pit have little influence on the rate of production. Slightly less pulp is produced at low temperatures.

(3) The horsepower consumption per ton, when untreated wood is ground, increases as the pressure decreases, according to a fairly definite law. It is lower on sharp stones than on dull ones and increases as the speed decreases. There is, however, not as much difference between the power consumption per ton at low speed and high speed as there is between power consumption at low pressure and high pressure. The power consumption is very little influenced by temperature, but it is slightly lower at high temperature. The power consumption is higher for seasoned than for green wood, and higher for steamed wood than for either seasoned or green material ground under the same conditions.

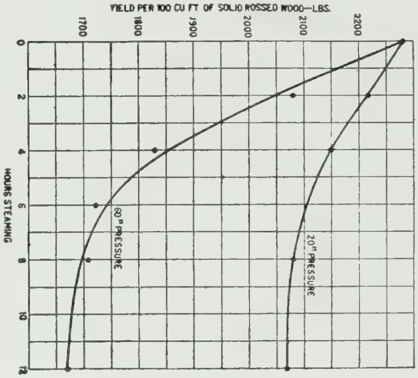


Fig. 18 Relation of yield to length of time wood was steamed prior to grinding

(4) The yield of pulp per cord is greater at high pressure than at low, and while this is true also of the screenings there is not as much fine material lost in white water when high pressure is used. The yield is not greatly influenced by the surface of the stone, but it is slightly higher at high speed than at low. The yield is proportional to the bone-dry weight per cubic foot of wood.

(5) The quality of pulp varies most with the surface of the stone, less with the pressure, and least with the speed. The weight per cubic foot and character of wood, especially the latter, influence quality to a marked extent. Temperature also has a marked influence. Pulp of greater strength

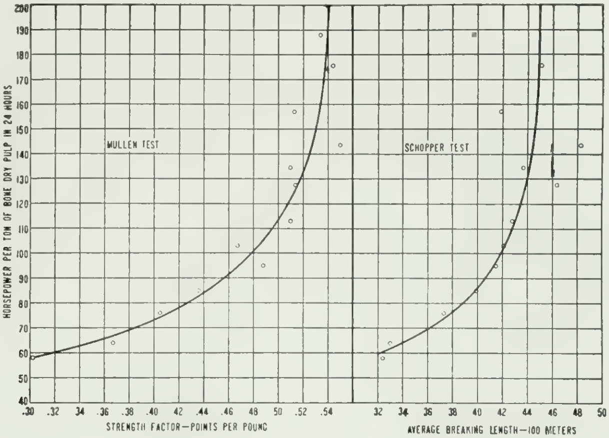


Fig. 19.—Relation of strength of paper to power consumption per ton of pulp. (Averages of all runs made.)

is obtained at higher temperature; that produced at low temperature will take a better finish. Pulp of better color can be obtained from green wood than from seasoned, and stronger pulp can be obtained by cooking the wood prior to grinding. The quality of paper produced under exactly the same conditions, but made of pulp produced at different grinder pressures, varies directly with the grinder pressure and the horsepower consumption per ton of pulp. Mechanical pulp of greater strength can be produced only by the use of a relatively large amount of power.

THE RECOVERY OF SULPHUR DIOXIDE FROM WASTE SULPHITE LYES

Herr Necas, of the Zsolnaer Sulfitstoff Fabrik A.G., read a paper on this subject before the OESTER-UNGAR-VEREIN DER ZELLSTOFF U PAPIER CHEMIKER at Vienna.

The length of the report which the German trade journals have given of his discourse testify to its importance. The following is an abstract of the report in PAPIER ZEITUNG:—

The solution of the problem of recovering sulphurous acid from the waste lyes must be sought in chemical methods. Every pulp maker knows the importance of using strong lyes containing plenty of free acid. With them we can get a pulp requiring little or no subsequent bleaching, free from splinters, and above all free from lime. Hence the urgency of economy by recovery of the sulphur dioxide.

Many processes have naturally been proposed. The first patent in this direction is that of Tilghmann (1866). The inventor of the sandblast process for engraving glass patented a process for absorbing the sulphurous acid escaping from the lyes by means of cold water. In 1880, Kellner patented an apparatus for the same purpose, as it was found that Tilghmann's method of collecting the waste gas from the hot vapours from the boilers was inefficient.

The principle of the method was to condense the steam at as high a temperature as possible, so that the sulphurous acid escaped comparatively free from water vapour, and passed at once into caustic soda or milk of lime for making fresh lye.

Drewsen, Flodquist, Harpf, and others have worked at the problem since Kellner's time, but the various processes evolved—some of which are in current use—are defective and uncertain. A recovery of half the sulphurous acid is the best result hitherto attained, and 20-30 per cent. is a proportion rarely exceeded.

Herr Necas then proceeded to explain a process devised by himself which will give better results than any hitherto achieved. He found in his preliminary investigations with existing plants that the absorption was always very imperfect, and that the chief reason for this was that the gases were not sufficiently cooled before or during the absorption. The solubility of sulphur dioxide in water lessens rapidly with rise of temperature, and once the limit of saturation is reached, not only are further supplies of gas not absorbed, but they carry away with them some of that which has been absorbed already.

Herr Necas then described an apparatus of his own invention for avoiding all these difficulties. His apparatus consists of a cylindrical vessel with its axis horizontal, holding about 3 cubic metres (600 gallons), and divided into two compartments by a vertical partition. The fresh lime lye from the towers or vats, that has to be enriched by the waste gases from the pulp boilers, enters the first compartment of the apparatus from a vertical pipe, and at the same time the waste gases enter the compartment through a horizontal injector-like nozzle which sprays the lye through the gases against the vertical partition. The cold lye at once cools and absorbs the gases.

The solution passes into perforated copper tubes in the second compartment, and thence into the outlet pipe communicating with the reservoirs for the enriched lye. Increases in the amount of free acid are obtained by this arrangement from an average of 3.16 per cent. to one of 5.12 per cent. More than 75 per cent. of the sulphur dioxide is recovered, and hence a great saving is effected in sulphur or pyrites, whichever is roasted to get the gas. The enriched lyes give a much reduced proportion of waste pulp, and also a pulp that requires little or no bleaching afterwards.

It has another advantage. It penetrates so powerfully that the wood can be packed much more closely in the boiler than is admissible with ordinary lyes, so that more wood can be treated at a time without increasing the scale of the plant. The apparatus is made by the firm of Nebrich, in Prague, and a patent has been applied for.

PAPER AND PULP UNDER THE MICROSCOPE

By SINDALL AND BACON

Special Series of contributions to Pulp and Paper Magazine

CHAPTER X.

Section of Gummed Paper.

Many of the problems which can be solved by taking sections of various papers, must simply be regarded as matters of interest rather than of importance. Of this we give an example in the case of a gummed paper.

The manufacturer of such an article is only interested in knowing the amount of gum which must be used per ream of paper to produce the desired result. This is usually expressed in the number of pounds of gum per 100 pounds of paper, or per ream. He is not concerned with knowing the extra thickness produced by the process. Should he desire to ascertain the increased thickness due to the added gum, such a result would most simply be obtained by measured 10 or 20 sheets in the micrometer, both before and after gumming. In the absence of a specially fine micrometer, the thickness of the whole ream of paper can be measured before and after gumming.

The microscopist with only one small sheet available can however determine this figure accurately by taking the section, preparing a microphotograph, and calculating the results.

In the case illustrated we have taken two coated papers which have been enamelled on one side and gummed on the reverse side. The two small pieces were then moistened and stuck together with the gummed surfaces inside and the two enamelled surfaces outside. The microphotographs obtained is shown in Figure 1.

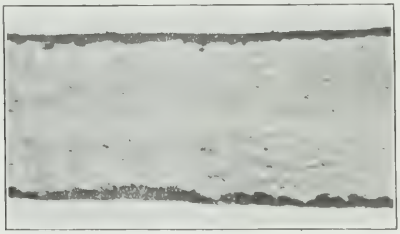


Fig. 1 —The cross section of the Enamelled Gummed Papers stuck together

The actual thickness of the two papers when stuck together was 0.216 millimetres (0.0085 inches). The average thickness of the enlarged microphotograph was 30 millimetres, of which 5 millimetres is occupied by the gum on the two surfaces of the paper. From this it follows that the thickness of the gum on one of the sheets is 0.018 millimetres (0.00071 inches).

We quote this simple experiment as an illustration of the work that can be done with the microscope in the examination of papers.

The Microscope in Bookbinding.

The introduction of the modern "antique" light bulky papers has created a world of difficulties for the bookbinder, who has found it impossible to get satisfactory results in binding. This is mainly due to the fact that the conditions of manufacture for such bulky papers produce a sheet in which the fibres are as far apart as possible, alarge amount of air space being included between the two surfaces of the sheet of paper. While this paper is agreeable to the general reading public, it gives much trouble to the printer and to the bookbinder. The structure of the paper in terms of its volume composition is however a matter of very considerable importance. For example, two papers made from Esparto might have the following composition:

Analysis by Weight:

	Antique.	Normal.
Esparto fibre	96.0	95.4
Ash, etc.	4.0	4.6
	100.0	100.0

In this case we have two papers of indentically the same composition in respect of the actual ingredients, fibre and ash. The "Antique" is a light and bulky paper, which has very little wearing qualities; while the "normal" is a book paper which will stand any reasonable amount of wear and tear. A book however composed of paper of the first type will fall to pieces and hardly be worth rebinding after it has been issued from a Public Lirbary about 36 to 40 times. A book printed on a normal esparato paper will be capable of resisting the wear and tear of 200 to 250 readers before rebinding becomes necessary. It can then be rebound and issued for a further 200 or 300 times.

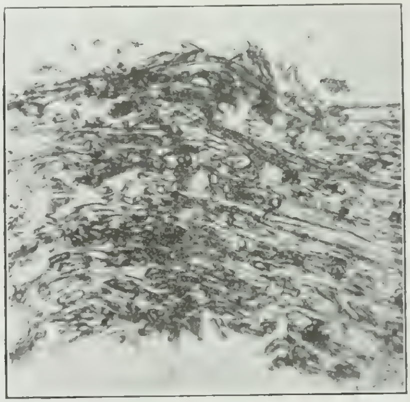


Fig. 2 —Showing effect of folding a "normal" Esparto Paper

An analysis of these papers by volume instead of by weight, showing the actual amount of air space occupied by the several ingredients, throws considerable light on the difference in behaviour of the two papers.

Composition by Volume.

	Antique.	Normal.
Esparto fibre...............	28.0	65.5
Ash	0.7	1.8
Air space	71.3	32.7
	100.0	100.0

It is clear from the above figures that the bookbinder is expected to bind sheets containing more than double the amount of air space in the case of the "antique" papers.

The accompanying microphotographs cut from sections of the paper show what really takes place with papers of this type.

Samples of the two papers were folded once and pressed lightly with the fingers. The paper was then opened up again and a section cut at the fold. The section was mounted and a microphotograph taken.

The contrast is very marked. In the case of the normal Esparto book paper, very little disturbance of the fibres has taken place at the fold, the compression bringing the fibres closer together if anything. Whereas in the case of the antique paper, the folding of the sheet and subsequent opening up has disturbed the fibres to an enormous extent. The amount of air space in the latter case is clearly indicated.

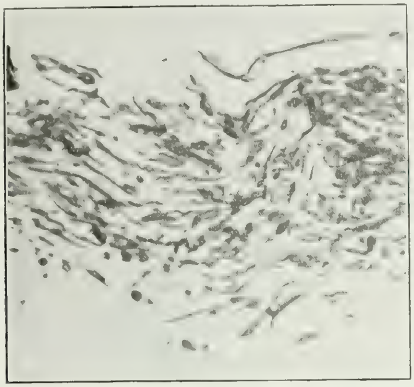


Fig. 3.—Showing the effect of folding an "antique" paper

PAPER FOR ENVELOPES

SPECIALLY CONTRIBUTED.

It has been popularly supposed that because of their short life almost any kind of paper would do for envelopes. Today, however, the maker of envelopes finds that the quality of paper used for envelopes may vary greatly for special uses, can be defined for specification within fairly close limits, and the paper maker must meet these requirements.

The main divisions of envelope-making are cutting, folding and sticking. The points in paper-making affecting these dividsions are:—

1. Cutting	Filler Sizing Finish
2. Folding.	Filler Sizing Finish Half Stuff Machine tending
3. Sticking.	Finish Beating Sizing

Cutting.

The filler if any is used should not be more than five per cent. and should be a high grade of China Clay very free from grit. The sizing should not be very hard, just enough to secure good writing surface. Starch made up with the addition of a small amount of soap chips in solution helps the cutting qualities. It also acts to some texent as a fller.

If the paper has been made with a hard water calling for use of extra alum, the residues left in the paper will increase the wear on knives and dies in cutting. Hence a soft water or a well treated water makes a better paper for envelope use. High finish is not desirable as this gives a tendency to slip in close cutting, thereby increasing the waste in culls and trimmings, making it necessary to cut fewer sheets at a stroke.

Folding.

The effect of excessive loading is readily seen in some cases in the appearance of the edges of envelopes when boxed as compared with others made on the same machine with little or no filling. Hard engine sizing with rosin and especially with much free rosin increases rhe tendency to cracked folds.

Calendering if not carefully done is a cause of trouble especially with hard sized papers. Calenders should preferably be warm and not very heavy. Diameter of bow does not seem to be of great improtance but on this point and indeed on the general subject of calendering for envelopes, little investigation has been carried out.

Fibres for good envelope paper should be long. Half stuff should therefore be treated in such a way as to preserve the length of the fibres. The action of the stone beater roll will be found advantageous for this work. Fibres of a short nature such as poplar should not be in much greater proportion than 25%. The machine should not run fast and great care must be taken that the sheet is not in a state of strain between presses and driers or between driers and reels. Every precaution to prevent expansion and contraction in the finished stock should be taken. Sheet must be well closed by good shaking and endeavours made to have fibres well felted so that paper may be folded well in any direction.

Sticking.

To make a good envelope on the automatic machine the fibres must absorb gum. Absorption is a property possessed by fibres as well as many other substances of concentrating solutions upon their surfaces. This property of the fibre is reduced by prolonged beating, and for this reason the wet beaten stock used in bond papers causes trouble in the envelope factory The short time in which the freshly folded envelope is subjected to pressure being insufficient to insure its being wetted by the thick viscous gum. For this reason also a free beaten sheet makes a less troublesome stock for machine made envelopes. The finish should be obtained by several low pressure rolls rather than by one or two at higher pressure as the high pressure in calendering tends to increase the hydration of the fibre. This makes it lews likely to seize the gum. Heating the rolls in calendering was found by a recent writer in "Papier Fabricant" to have a beneficial effect, especially in lightly sized paper. Uniformity of surface is especially desirable from the viewpoint of the gumming machine as otherwise the automatic action becomes irregular.

In some cases of envelope troubles coming before the writer, the paper-maker has been blamed for what has been really the fault of the maker of the gum or rather, the man who mixed the gum. In one case of sticking troub envelopes of engine sized bond and tubsized antique, would not stick. Here the cause was to be found in the medium used for sticking which was tapioca dextrine and was of such strength that it cracked and fell away from the fibres in the bond papwer.

In the antique on the contrary, it adhered closely to the fibres and to such an extent as to overcome its own cohesion, so that the layer of gum itself was spit. The solution in this case was to thin up the gum.

THE FIBRES OF MECHANICAL PULP, THEIR FORMATION AND IDENTITY

(Written and Illustrated by James Scott.)

We hear much about fibrous structures, yet the fact is that little is understood on the subject, except by botanists. References are frequently made to the fibres of such plants as maize and sugar cane, from which long, slender threads can be obtained if the stems are properly rotted. All herbaceous stalks possess similar fibres, which pass up between the nominally cellular substance, or pulp. In timber, however, although long, slender filaments of the same kind occur, extending from root to branches and along the latter into the leaves, the smaller, or true primary fibres, are so numerous and compact that they prevent the isolation of the long threads.

In studying fibres we must begin with the formation of the pith, which, as everyone knows, is the soft, spongy core of stems. All common plants begin growth with a central string of pith running up the stem, outside which is the hard sheath or skin. The pith cells are nearly always globular and loose, and in water plants dry up to form curious patterns. Arranged symmetrically among them are the rudiments of parts which at a later stage constitute the tubes or vessels already referred to.

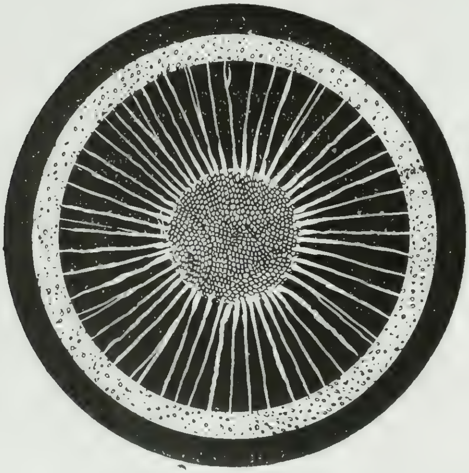


Fig 1.—A magnified diagram of a section of timber tree, the actual diameter of which was only $\frac{1}{8}$ in. Behind the outer dark ring of bark is the cambium, connected with the pith core Wood occurs between the radiating white lines.

Just beneath the skin or bark is a sappy layer of indefinitely formed cells, which are little more than a mass of frothy solution. This, of course, encircles the stem as a cylinder underneath, and in contact with the skin, and is known as the CAMBIUM. In Fig. 1 is a diagrammatic illustration of magnified thin cross slice or transverse section of a one-year-old tree of an ordinary kind, in which the parts mentioned are denoted. The sketch was made from a section only $\frac{1}{8}$ inch in diameter.

The function of the CAMBIUM is to supply the underside of the skin or bark with new layers of a corky nature, and the outer side of the core (which is exposed when a stem is peeled) with a supply of cells which differ in shape from those of the bark.

There is always a connection between the CAMBIUM and the pith, even in trunks of many years' standing; but during growth the slender attachments tend to get thinner and thinner and broken up, while the pith ceases growth. In mature timber these connections form what are known as the medullary rays, and are revealed in a cross-cut trunk or bole by the radiating lines seen spreading from centre to circumference. These rays often give a beautiful appearance to the grain of plank wood.

Looking at Fig. 1, we find the pith, the CAMBIUM, and its connections indicated by the white portions. The black outer ring signifies the bark; and the black parts through which the white lines pass represent those of a fibrous or woody kind.

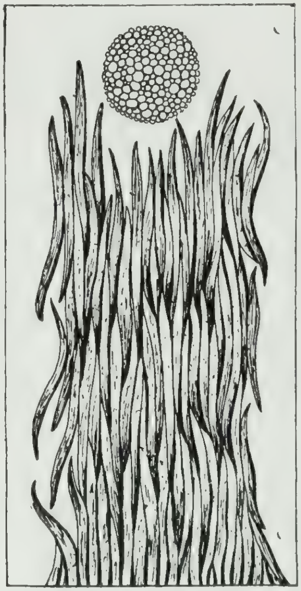


Fig. 2.—Showing how wood fibres are arranged in exogenous trees, *i.e.* the general run of timber side by side in an upward direction, with points fitting between others. These fibres are tubes, and help to form the "grain" of wood. The actual length of the compound depicted was only about $\frac{1}{8}$ inch long. The appearance of these fibres in cross-section is shown in the mesh-work disc above.

In a manner of speaking the pitch gives rise to the hardwood fibres, helped, of course, by supplies of nutriment exuding from the CAMBIUM. The latter is really a rich bubbling froth, while the pith consists of tiny spheres capable of splitting up into smaller sizes or of enlarging, according to necessity.

Some of the pith cells elongage upwards and downwards, and become pointed at the newly formed ends. (As an analogy, make a small pill of candle wax, and roll it out between the fingers into a thread. The pith cell will be typified by the pill, and the fibre by the thread.)

During the growth of a tree, pith is gradually replaced by fibres which are subsequently laid down in a similar way by the CAMBIUM direct. The frothy bubbles of the CAMBIUM elongate upwards and downwards on the outside of the core, beneath the bark.

Although pores often exist in the communicating ends of the fibres, solutions are capable of soaking through the thin membranes of the fibres and cells, and in this way be passed from sap vessels to any portions needing nourishment.

The heart wood (duramen) of a tree is really lifeless, as is proved by the fact that the twigs and branches on mere shells of bark frequently produce abundant foliage and flowers, the CAMBIUM ring, with a FEW inner cylinders of wood, being sufficient to keep things going. These facts explain why hollow trees remain vigorous to an old age.

The manner of arrangement of the perfected fibres is shown in Fig. 2. Fibres are hollow, tube-like objects with finely pointed ends. They are cemented between one another in a naturally permanent manner, yet are detachable by mechanical and chemical means. In newly grown wood, where they comprise the sap ring, or alburnum, they are filled with mineral solution or stickly nourishment; but in the older parts of a tree, or heartwood, they are completely choked up with matter which is practically dead. It is to free the fibres of these substances that the paper-maker is called upon to exercise his ingenuity and patience.

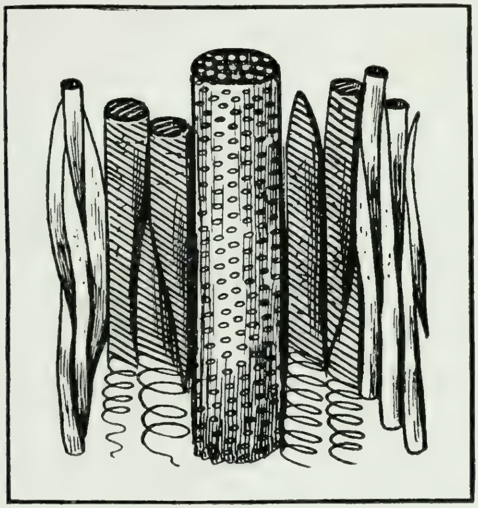


Fig 3.—Showing how the sap tubes (the dotted middle figure), and the air tubes (the spiral filled objects), and the wood fibres (the slenderer pointed parts), fit together side by side. See also Fig. 1

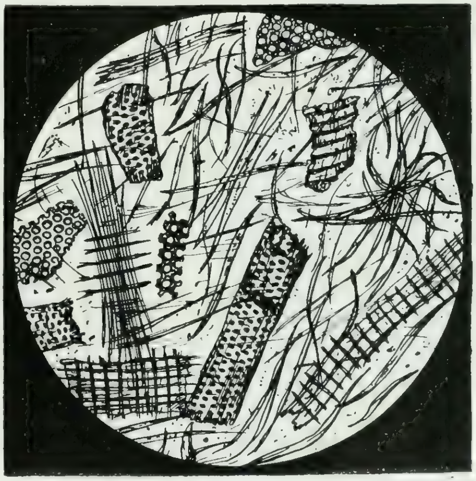


Fig. 4.—A space equal in diameter to a pinhole, greatly magnified, showing the appearance of the cellulose fibres of popular wood The dotted portions are shown intact in Fig. 3.

Some of the fibres are so modified and specialized that they become almost different objects. For instance, fibres are lined with spirally-wound filaments, which strengthen them and keep them open for the passage of air. In consequence they are called TRACHAE. It must be expected that gases occur inside trees as the result of changes of the materials; and such products of decomposition must be permitted some outlet. No doubt, solutions also travel up these prepared tubes in seasons of flood or excessive rain.

Many of these tubes are strengthened by simple filamentous rings, fixed at various distances apart like ladder rungs; while some have a combination of rings and spirals. In other cases, two, three, or four filaments together are wound round instead of a single one. Another style of tubular fibre is that known as a dotted duct. Its diameter is very much wider than that of the tubes previously mentioned, and its membranes or wall is spirally spotted. One theory has it that the specks denote depressions on the inner side, or lining, of the tube; while another infers that they are hard, resinous atoms. I believe that both ideas are correct, because it is quite feasible that the minute cavities could be filled with sediments of substance at times. The dotted ducts are square ended, instead of pointed, like the others.

In Fig. 3 may be seen the various fibres named, diagrammatically magnified. In some trees the spiral and dotted tubes are arranged in groups in a beautifully symmetrical manner among the plain kinds.

Speaking further of Fig. 3 it should be pointed out that there generally exist, in each long strong, a few of the larger dotted ducts, and several of the spiral vessels, besides other specialised parts such as sieve tubes, lying side by side, so that in a cross section many holes would be revealed. The single fibres, bear in mind, are short, but are laid between one another, or end to end, to compose very long strings.

The dotted and spiral tubes thus connected end to end pass right from the roots, through the trunk and branches, and into the mid ribs and veins, for the purpose of conveying sap and air up and down for distribution among the cells.

In Fig. 4, which is an exact reproduction of the actual cleansed cellulose, the detached fibres and portions of the dotted tubes or ducts, along with scraps of medullary rays and pith, can be very well seen. The absence of spiral vessels is explained by the fact that in heart wood (which when cut down constitutes timber) these tubes tend to get killed out, while the dotted ducts, being larger and stronger and more open, remain so that solutions may drain off from the dead cells. At the same time, the mechanical and other treatment of the wood loosens these spirals and so deforms them that they are hardly traceable.

Cellulose consists of the membranes or walls of the various cells; and, as the reader knows, it is very difficult to rid these things of their contents.

Reverting for a moment to Fig. 1, it needs pointing out that the fibres are the same as those indicated by the curling lines of Fig. 4, so that some idea of their actual lengths can be obtained.

So far I have been referring to what are known as exogens. In such trees or plants as these the tubular vessels and fibres form rings outside one another, and reveal them when the trunk or stem is cross cut. Each year's CAMBIUM deposits a ring and dries up until the following spring, when it renews its activity and forces the bark outwards, while it lays the foundation of a new ring of wood outside the others.

In endogens, on the other hand, the woody fibres and vessels are scattered irregularly all through the stem, and between them fit the soft globular, or brick-like, and angular cells, each about as deep as it is wide. When these are cut across the tubes and the adjoining woody fibres are disclosed as orifice of larger size among the meshes which indicate the soft cells. Stems of this kind include the palm, sugar-cane, cereals and grasses, hemp, flax, and herbaceous stems. The woody parts—the tubes and fibres—can be withdrawn from them as long threads which need magnifying before their compound structure can be detected.

Similar strings existing among the fibres of timber cannot be extracted on account of the crowded, hard state of those fibres.—Paper Maker.

THE DETERMINATION OF THE DEGREE OF BLEACHING IN CHEMICAL WOOD PULP

By Dipl.-Ing. Bjarne Johnsen.

When chemical pulp containing lignine is treated with nitrous gases and then with alkali a dark colour is caused, as is known. For example, if finely filed chemical pulp is shaken for a short time with 1% nitrous acid and after being sucked off is mixed with dilute caustic soda lye, in the case of soda kraft-cellulose a deep dark brown colour occurs, in the case of an ordinary unbleached soda cellulose a lighter brown colour, whilst unbleached sulphite pulp assumes a vivid red-brown colour which is darker or lighter according to the purity of the material, and with a little practice one can obtain from the colour an idea as to the degree of disaggregation. The colour may not be considered to be a lignine reaction, because even in the case of chemical pulps fairly rich in lignine a short bleach suffices to weaken the colour considerably and to change it into yellow. The longer the bleach is continued, the weaker is the colour until it finally quite disappears. This reaction which can be obtained in a few minutes therefore seems suitable for checking the bleaching process itself, in order to avoid the bleach going too far. The determination of the copper index according to Schwalbe supplies, it is true, a more exact evidence for determining the degree of bleaching, but occupies too much time for checking the process.

The following is an example of how the test may be performed. A Mitscherlich pulp and a soda pulp, both unbleached, and having a density of 5%, were bleached with 8% chlorine. Pulp was taken out of the fibrous mass after every hour and sucked off, the chlorine was destroyed, with some sodium bisulphite solution, and finally the fibres were washed. They were well shaken for 2 minutes in a test-glass with 5 ccms. sodium nitrite solution (29.4 g. $NaNO_2$ per litre) and 5 ccms. sulphuric acid (20.8 g per litre), sucked off in the Gooch crucible (not washed) and finally mixed with 10 ccms. 2% soda lye in a test-glass, shaken well and left to stand for 5 minutes. During the bleaching the initially reddish brown or brown colour produced soon changed into yellow, gradually became weaker until the whiteness of a freshly prepared standard sample was obtained. The Mitscherlich pulp required 5 hours, the soda pulp 3 hours. By making samples it was determined that the bleach was finished after these periods.

By heating the fibres mixed with soda lye the reaction did not become more distinct, but another interesting phenomenon was met with. During the bleach the colour at first went gradually back, but increased again after a certain time, in the case of the Mitscherlich pulp after 7 hours, and in the case of the soda pulp after 3 hours. It may be assumed that this phenomenon is due to the formation of oxy-cellulose which when heated with alkali produces a yellow colour. In this way it can therefore be determined whether the bleach is carried too far; this is the case as soon as the color deepens after it has begun to disappear. This was also confirmed by determining the copper index.—Der Papier-Fabrikant.

OBITUARY

ALEXANDER GIBSON.

In the death of Alexander Gibson, sr., which occurred at his home at Marysville, N.B., on August 14th, Canada and the pulp and lumber industries of the world lost one of their greatest builders. The late Mr. Gibson had celebrated his ninety-fourth birthday on August 1st but had been critically ill for some time before his death suffering from a general break-down. Two sons, three daughters, nineteen grandchildren and several great-grandchildren survive.

Mr. Gibson was born in Charlotte County, N.B., and as a boy started at the bottom of the ladder in the woods along the Bay of Fundy. By sheer perseverance and business ability he was eminently successful and is said to have been the largest single operator in the lumber and pulp trade in the world. He was called the "King of the Nashwaak" and was known by manufacturers of forest products the world over.

Besides his success and great interest in the lumber and pulp industries Mr. Gibson found time to engage in several railway enterprises. In conjunction with the late Hon. J. B. Snowball, he built the Northern and Western Railway (afterwards the Canada Eastern) from Gibson to Loggieville. He became sole owner of this railway in 1893, and successfully operated it until 1904, when it was purchased by the Dominion Government, and made part of the Intercolonial system.

Mr. Gibson also built a narrow gauge line of railway from Gibson to Edmundston, 150 miles in length, and disposed of it to the New Brunswick Railway Company, which concern after operating it for several years, in turn disposed of it to the Canadian Pacific Railway Company.

Mr. Gibson was one of the incorporators of the Fredericton and St. Mary's Bridge Company, which erected the steel bridge which spans the St. John River from Fredericton, which is now the property of the Dominion Government and in 1880 he was one of the syndicate with the late Sir W. P. Howland that offered to construct the Canadian Pacific Railway.

NEW PRICE BROS. BONDS LISTED.

£141,780 additional bonds of Price Bros. & Co., Ltd., were listed on the Montreal Stock Exchange this week. The issue brings the total outstanding bonds of the company up from $5,110,000 at the beginning of the year to $5,800,000, or within $200,000 of the authorized issue.

WHO'S WHO IN CANADIAN PULP AND PAPER INDUSTRY

The Fourth of a Series of Monthly Articles in the Pulp and Paper Magazine

J. H. A. ACER, Montreal

By J. C. ROSS

To the ordinary mind the mention of the word "Laurentide" or "Laurentian" calls up a vista of virgin forest, pine clad hills, beautiful crystal lakes and rushing streams of water. These words are largely associated with hunting, fishing and recreation. It is only within the past decade that the word "Laurentide" took on a commercial significance. To-day, the word stands for efficiency and in expansion the pulp and paper industry as the Laurentide Co., Ltd., is undoubtedly the best known pulp and paper manufacturing company in Canada. Its phenomenal success, the spectacular rise in the market quotation of its stock, its valuable limits, efficient management and the value of the products produced, to say nothing of the men associated with it, have made this company bear the same relation to Canadian pulp and paper industry as the "hall mark" is to silver.

The president of the Laurentide Co. is Sir William Van Horne to whom in a large measure the success of the company must be attributed. Sir William is not only a good administrator but what is far better, is able to pick competent assistants. Aparently he believes in "catching 'em young" and turning them loose with instructions to sink or swim. It is noticeable, however, that every selection he has made, he has picked winners. The men he placed at the head of the Laurentide Co. were no expection to this rule. George Cahoon, Jr., the Vice-President and Managing Director of the company took charge of the business when he was scarcely out of his teens. Another youthful servant of the company is Mr. J. H. A. Acer, who became General Sales Manager when but 30 years of age. To his efficiency as a salesman must be attributed a large measure of the success of the Laurentide Co.

Mr. Acer, the subject of this sketch, was born in Colborne, Ontario, in 1876. He was educated at Bishop's College, Lennoxville, Quebec, and at McGill University. However, he left McGill before he completed his Arts Course and went as office boy to Mr. Drinkwater, then Secretary of the C.P.R. Usually a young man who attends a private school and then gets a taste of university life thinks he should start at the head of a business and, after about two weeks experience in running things, can give pointers to any and everyone connected with the company. "Johnny" Acer was willing to reverse this order and did not mind a bit starting at the bottom. This willingness to learn, combined with an abnormal capacity for work, soon brought promotion and he was transferred to the Freight Department. After spending some little time learning how to "put one over" on the shipper, he thought he would like to learn something about the freight from the other fellow's standpoint and left the C.P.R. to take a position with the Laurentide Co. This was in 1900. It is probable that Sir William Van Horne, who had had his eye on Acer during the years he was associated with the C.P.R., had something to do with his transfer to the Laurentide Co., of which Van Horne was president. At any rate, Acer took to the tall timbers and for the next ten years worked his way to his present prominent position. In 1902, he became purchasing agent and was made treasurer in 1905. In the following year, he was made treasurer and general sales manager. In 1912, while still retaining his position as treasurer and sales manager, he was moved to Montreal to take charge of the offices which the company opened in this city.

During the dozen years he has been connected with the Laurentide Co., Mr. Acer has seen the concern grow from a small unknown, struggling plant to the largest pulp and paper manufacturing concern in Canada. Within the past few years, he has seen the Company increase its capital two or three times, increase its dividends and in other ways make marked progress. Since he joined the company the capital has increased from $1,600,000 to $7,200,000 and other features of the company in like proportion. In a large measure, the progress of the company is due to the good salesmanship of its Sales Manager.

Mr. Acer is a quiet, modest unassuming young chap, who has not been spoiled by his rapid progress. He is thoroughly in touch with his work, alive to every movement which effects prices or sales and, if work can be called a hobby, it should be designated as his chief pastime. The little recreation he does take is found in polo and tennis. Mr. Acer is an Anglican in religion and says that he has no interest in politics. As a manufacturer, however, he is supposed to lean toward the Conservative side. Mr. Acer married Miss Margaret Black in 1900 and has three children—two girls and one boy. His home in Montreal is at the foot of Mount Royal where he can see the forest-clad slopes of the mountain and thus be reminded, that it is in forests and the by-products thereof, that he has made his success in life.

Mr. J. H. A. ACER,
General Sales Manager of the Laurentide Company, Limited.

COMMERCIAL FORESTRY

Address by Ellwood Wilson at Soo-Nipi Park before the Society for the Protection of the New Hampshire Forests and Directors of the American Forestry Association, July 23rd, 1913.

This is a very broad subject and one that may be handled in many different ways. I do not propose to cover the whole ground nor even a medium-sized part of it but only want to speak to you about commercial forestry from the standpoint of the forester who is employed by some commercial concern. I happen to be interested in the paper business as the forester for a paper company, and, as you all know, paper companies use up a tremendous amount of wood annually for paper, newspapers, books and a thousand other uses to which paper is put.

Now all large industries—and I think the paper industry in particular—are accustomed to look at the dollars and cents side of the proposition and the first question which is asked the forester who wants to work for a commercial concern is, "Will it pay" and the second demand is, as from the "Man from Missouri," "Show me." Now the forester is in a very unfortunate position in that he has no experience in forestry conditions in this country to go on or to point to. Paper manufacturers, both those who bought their wood and those who owned their timber lands have until within the last few years paid little attention indeed to forestry but have regarded the woods more as mines than as agricultural holdings. The really vast tracts which some paper companies have and the large virgin forests from which they have been able to draw have been mined year after year in the hope that the supply would prove inexhaustible; in fact, until four or five years ago the companies in Canada were positive that they had timber for all time to come. Those in the United States were not so sure of their supplies, and after hearing so much of Canadian resources, took time by the forelock and bought up large holdings in that country.

The newspaper industry uses up huge quantities of wood and employs practically only one or two species. A very few years ago no paper manufacturer would use any other tree but spruce, but now the beginning of the failure of that species has turned their attention to fir or balsam. Eight years ago very few concerns would use more than a small percentage, 5, 10 or 12% of fir in their operations, now they are using practically just as much fir as spruce and in some cases nearly three fourths of the wood used is fir.

I said that we had very little experience to draw from the forestry work and forestry conditions and methods in this country, and the first thing necessary is to try and get some experience and some data on which to base our future operations. In Norway and Sweden, the two great European producers of the raw material for paper making, and in Germany, to some extent, the wood is bought by the manufacturers from small holders, mostly farmers who own small forests and wood lots. There are few who own large forests as on this continent. In this country the situation is entirely different. Most of the concerns in the United States own their own timber tracts and those in Canada practically do as they lease the lands from the Government in perpetuity. This is a point which I shall come back to a moment later.

Owning their own holdings as these companies do and using such enormous amounts of wood, it is necessary to look to the future, and the first question which every forester is asked by these concerns is how long will our present supply last. This is a very difficult question to answer. The first thing we had to do was to abandon hope, for a time, of doing any silvicultural work or of doing any sort of so-called forestry work, and to settle down to making inventories, in some cases a very difficult matter because there were no maps or no available information as to the exact size of these holdings as to their boundaries and a thousand other engineering details which had to be attended to first. The matters have had to be taken up, and in the case of large holdings, running all the way from one million acres to six thousand square miles—these holdings are as large as some of the European States—it is a matter of some considerable time to make an inventory and find out what we have to depend upon. Then, of course, there has always been the antagonism between the old and the new ideas. It has been a very difficult matter to convince people in business that old ideas about lumbering and about handling the forests would have to be abandoned, but I think that the present movement toward efficient utilization of every possible scrap of wood or other raw material has brought the fact home to the managers of these companies that it would be absolutely necessary to be sure what they had and to be sure about the supply for the future.

Another point that has perhaps held back the forestry movement among these concerns has been the fact that some other materials might be used to make paper which would do away with the use of wood altogether, or that some other country for instance like Japan or India, might take away the paper industry through the use of some quick-growing wood like bamboo. You all know that corn stalks and cotton stalks and the refuse from sugar can have all been spoken of as possible paper materials, but the difficulty of storing large quantities of these materials without fermentation and damage to the figure will probably hold us to wood as the principal material for making paper for a great many years to come. The forests are now answering the demand for wood for this industry and I think we are fairly sure that it will pay to operate our forests as if wood was going to be the material for paper for a long time to come.

There are two types of men who manage large concerns. The first and more common, is the man who does not look very far into the future but is concerned solely with earning as large dividends as possible with the least possible expenditure and who handles his employees as if they were part of the machinery, the so-called "hard-headed business man; and the other, and to may mind the more sensible manager, the man who is something of a dreamer, who sees his work as part of a big scheme for the betterment of the world, who sees the human side of his position, who is willing to look ahead and work on broad general lines, governing himself always by sound financial considerations. Now I am happy to say that in the paper industry this latter type is often found and the paper concerns have to a great extent, especially in Canada, pushed forward the government to do its duty in regard to the forests. Holding as they do in Eastern Canada, enormous forest wealth they are much in the public eye at present on account of the restrictions which some of the provinces have placed on the export of unmanufactured wood.

As I said, the American companies are looking to Canada for their future supply, and of course they have their plants already located, very expensive, very extensive and requiring a large amount of raw material. It would be impossible to move these plants, and consequently they would like to bring Canadian wood into this country in order to manufacture it here with their already existing facilities The Canadian government has decided that it is muc better to use its natural resources at home and would lik very much to see these large plants, or at least a part of them, moved over so that the wood could be used on the ground and employment given to natives of Canada and more wealth and greater development achieved. The United States government, seeing this situation, and being anxious to help out both the paper makers and the paper users, have tried by tinkering with the tariff and by discriminating against wood which is grown on crown lands to adjust the situation. The matter is now practically a question of reprisals, and I hope that very soon both governments will see that it is absolutely necessary for the good of this most important industry, to work together and will come to some fair agreement.

To get back again to the forester's part in all this, the great difficulty has been to have comething definite and authoritative to say to managers of concerns who are asking for advice and information. We have now by a careful inventory of a good part of the woodlands in Quebec come to the conclusion that the supply available by the present streams and means of transportation is good for fifity or sixty years more; that is the present stand in virgin foresty. You may say that forests grow, and so they do, but Dr. Fernow has just told you that there is no increase in the amount of timber in a natural forest as the decay and death of trees balances the new growth. Consequently with these large plants already in operation, and numerous others either building or planned, all consuming or to consume enormous quantities of wood, it is necessary to look to the future and to decide at once how we are going to take care of this question.

I think there is only one way, after my experience along these lines. In fact I am positive that there is only one way to handle this question, and that is to begin to plant, and to plant on a large scale. I am quite sure that the financial return will be adequate and when you think of the huge cost of these plants which must be situated where water power is cheap, where there is an easy way to get the wood of the forest, namely by floating it on the rivers, and that it is necessary to provided them with raw material, it seems that their dependence on wood, and their interest will soon bring them to the this conclusion and that they will soon being to plant on a large scale.

The company by which I am employed, uses one and one-half million trees a year, so you see it is necessary to make provision on a large scale. We have been for the past four years experimenting with species which grow quicker than our native ones, and though of course it is too soon to say what the results of the experiments will be, still I hope that in a few more years we, at least, will have begun to plant as many trees each year as we cut. You may say that it takes a long time to grow trees but I do not think that the time element can play such a very important part in this question because that plants should go on practically in perpetuity. They are all owned by large corporations which are self-perpetuating and will endure as long as any other human institution and planting will give, even without taking into consideration, the sure rise in the value of timber, a proper financial return. So far planting on a fairly large scale we have found that it can be done as low as five or six dollars per acre. We have planted nearly one hundred acres and are pretty sure of the success of the trees thus far. Of course we do not know as yet, whether the species which grow naturally in the woods are going to do as well in pure stands as they will be planted, but the probability is that they will do better and we are trying plantations of different kinds of trees both in pure and mixed stands and on different soils. We are going to pay special attention to the balsam fir, as it grows faster than spruce and will survive more unfavorable conditions and will give us wood for pulp sooner than any other tree.

I think the field of the forester in the work of these large corporations is one which will develope more and more and will show itself to be of more and more value. When the forester learns the practical bearing of his work, when he learns how to deal with the lumberman and the paper manufacturers and when he shows them that there are actual returns in dollars and cents from forestry, the field will be enormously increased.

The great question of fire-protection, of course, is the first one to be met and we have practically settled in the Province of Quebec by the formation of the pioneer co-operative society, the St. Maurice Forest Protective Association, and the broad-minded and helpful attitude of the Minister of Crown Lands, the Hon. Jules Allard, and his Chief of Fire Protection, Mr. W. C. J. Hall. This Association has charge of over seven million acres and has two successful years behind it.

Canada is wonderfully well placed in regard to care of her forests, which for the most part have never been given over to private individuals but are still held as crown lands. The right to cut the timber is licensed to companies and to individuals, and the exploitation is carried on by them under the supervision of the government. Unfortunately the immense extent of territory and the lack of trained men and the difficulty in dealing with the large number of settlers to whom the forest is only an enemy, a hindrance to be cut down or burned up as soon as possible, has hampered the government in its work. A new era is, however, dawning, and the Dominion government Forest Service and those of the Province of Quebec and British Columbia are doing splendid service. The first forestry work in Quebec was undertaken by private initiative and the necessity for such work pointed out to the government. It is to be hoped that there will be no backward steps and that the government from now on will take the lead and will conserve the forests and look after the fire protection, taking over a burden which rightfully belongs on its shoulders. At present under the lease system the licensees pay not only the annual rental and stumpage dues but bear all the expense of fire protection, stock-taking and measurement.

There is one question which is rather interesting in oncnection with what Dr. Fernow has just said. That is the amount of growth which takes place after lumbering. It has been found over very large areas, that the average cut per acre, counting all territory, burns and that which is not covered with merchantable timber, is about three cords or six thousand feet board measure per acre. The government regulations will not allow the cutting of any trees under certain diameter limits. Spruce, for instance cannot be cut unless it has a diameter of twelve inches two feet from the ground. The result has been that trees of this diameter and over have been removed. The smaller trees have been left for seed trees under the supposition that they would supply all the seed necessary for natural regeneration, but on land which has been cut over, measurements have been taken over many different sections and show that not enough is coming on from seedlings and saplings to make a second trip into this section profitable; that is under ordinary circumstances we find that the reproduction, if the forests are left to nature, will only amount to one or at the very most two cords per acre after thirty or thrity-five years; so you see that from the standpoint of the future crop, the diameter limit and natural reproduction are not efficient. This is of course a very important question. Another drawback is that where forests have been cut under this system, taking out only the softwoods, the only ones which can be used until railroad transportation supersedes floating, the growth of the large hardwoods has been encouraged and its reproduction facilitated, and since these are practically weed trees and will remain in that category for many years to come, planting is really a necessity and should begin at once. I think this the only method of perpetuating a sufficient supply of timber and I agree with Dr. Fernow that the government is the agency which should take it up.

CLAIM OF UNITED STATES TREASURY DEPARTMENT OVERRULED

SPANISH RIVER PULP AND PAPER COMPANY vs. TREASURY DEPARTMENT.

General Appraiser Somerville hands down decision that when restrictions were removed by a Province from Pulp Wood, paper and pulp from that wood were entitled to the benefits of Section 2 of the Reciprocity Act.

(Special to Pulp and Paper Magazine.)

New York, N.Y., August 21, 1913.

One of the most important decisions of the Board of United States General Appraisers, since the passing of the Canadian Reciprocity Act on July 26, 1911, was handed down yesterday by General Appraiser Somerville. This decision is of particular interest to Canadian paper manufacturers as it over-rules the claim of the Treasury Department that the paper of the Spanish River Pulp and Paper Company could not enter this country free of duty if made from pulp wood cut from Crown lands of Quebec, on which that province had removed restrictions because of the fact that the grant was equivalent to a "contractual restriction." The substance of General Appraiser Somerville's decision was that when restrictions were removed by a province from pulp wood, paper and pulp from that wood were entitled to the benefits of Section 2 of Canadian Reciprocity Act.

This decision should also be of great interest to British Columbia pulp and paper manufacturers as conditions there of the Powell River Company are almost identical with those in Quebec. It will be remembered that paper manufacturers of Oregon, Washington and California lodged a strong protest against the free admission of pulp and paper made by the Powell River Company on the grounds that the pulp wood was cut from Crown lands. This decision now over-rules the protests of the west coast manufacturers also and allows free entry, until the new pending tariff goes into effect, of the products of the Powell River mills.

Last fall the Province of Quebec released all restrictions on its Crown lands to four large mills, provided, they would employ 1,000 hands in the forest and operate two machines. These mills immediately sought to have their products entered free of duty into the United States under conditions of the Canadian Reciprocity Act, but the Treasury Department ruled against them declaring that Section 2 specifically provided against the free entry of paper and pulp from Crown lands which carried restrictions with them. The action of Quebec Province caused much comment at the time and paper manufacturers were in a quandary as to whether the United States Government would permit of such action.

The decision of Appraiser Somerville, which is given herewith, gives in detail the agreement entered into between the four mills in the Province and the Government of Quebec. This agreement is considered a wonderful document as it shows that paper manufacturers in the Dominion can make money and tie themselves up by complicated contracts.

The following provision is contained in the agreement made on Nov. 25, 1912, between His Majesty,represented by the Hon. Minister of Crown Lands, for the Province of Ontario, and the Spanish River Pulp and Paper Mills, Ltd.

"And Whereas, the Company has applied to the Government to be relieved from the restrictions against the export of wood before mentioned and the Government has agreed to grant such relief subject nevertheless to the terms hereinafter contained:

Now Therefore it is Agreed:

1. The Company shall prior to the first day of July, 1913, erect and equip at Espanola aforesaid two additional paper machines, and shall from and after the said date containously operate the same:

2. The Company shall from and after the said day of July so operate its pulp and paper mills at Espanola and Sturgeon Falls aforesaid that the annual output of the said mills in pulp and paper will amount to at least fifty thousand tons and so that at least five hundred hands on an average will be continuously employed in connection therewith.

3. The Company shall in every year during the season of operations employ at least one thousand hands in the woods cutting wood for the purpose of the operations of the said mills and plant.

4. In consideration of the foregoing the Company, its successors and assigns, shall notwithstanding anything contained in the grants of the said Concessions or either of them or in any of the Agreements in amendment or extension thereof be entitled to cut and remove the wood suitable for the manufacture of pulp, authorized to be cut under said agreements, from the lands comprised in the said concessions and each of them (subject to the payment of the dues as provided in the said Agreements), not only for the manufacture of pulp and paper in the pulp and paper mills of of the Company but also for the purposes of export in the wood or for sale to other persons for export in the wood and all prohibitions and restrictions contained in the grants of the said Concessions or in any of the Agreements in amendment or extension thereof relating to the export of wood are hereby rescinded and the Company, its successors and assigns, shall be and is hereby relieved and discharged therefrom and the Agreements granting the said Concessions shall be read as if the said prohibitions and restrictions had not been contained therein.

5. Nothing herein contained shall in any way abridge or curtail any of the covenants, conditions or obligations contained in the grants of the said concessions or either of them or in any of the Agreements in amendment or extension thereof and all of said convenants, conditions and obligations shall be and remain in full force, except as hereby amended.

6. In the event of the Company, its successors or assigns failing at any time to perform any of its obligations herein contained or failing to comply with any of the covenants, conditions or obligations of the Company contained in the said Agreements granting the said concessions as amended hereby and by the said subsequent agreements then the Government may without any notice, revoke the right, license or permit to cut wood upon the lands comprised in the said consessions and each or either of them or may by order-in-council impose upon the Company, its successors or assigns such regulations or conditions as may more fully and effectually secure to the Government the complete performance of the said covenants, conditions and obligations and every of them. Provided further that the Lieutenant

Governor of the Province of Ontario in Council may, notwithstanding anything herein contained, from time to time for any cause which may to the Government appear sufficient, by Order in Council make such regulations or impose such restrictions upon the export in the wood of any pulp wood or other timber cut upon the lands comprised in the said Concessions or either of them, and may from time to time rescind, revoke or vary any such Order in Council and make other regularion or impose other restrictions in lieu thereof.

IN WITNESS WHEREOF the Minister of Lands, Forests and Mines of the Province of Ontario has hereunto set his hand and official seal and the Company has hereunto set its corporate seal and the hands of its proper officers.

W. H. HEARST,
The Spanish River Pulp and Paper Mills, Limited."
T. E. WATSON,
Vice President and General Manager,
H. J. WARD,
Secretary.

Signed, Sealed and Delivered
In the presence of:
AUBREY WHITE.
J. M. FORGIE.

(Seal).

In sustaining the protest of the Spanish River Mills claiming free entry of pulp and paper and reversing the collectors' decision in each instance with instructions to reliquidate the entries Appraiser Somerville said:

"The merchandise consisted of mechanically-ground wood pulp, which was assessed for duty at one-twelfth of one cent per pound under paragraph 406 of the tariff Act of 1909 (the pulp being manufactured from wood cut on Crown lands) and printing paper not exceeding 4 cents per pound in value, also assessed under the same paragraph—all being the product of Canada and imported directly into the United States. The protestants claimed that there is not now imposed any export duty on this pulp and paper and same should be entered free of duty under the terms of Section 2 of the Canadian Reciprocity Act of July 26, 1911, which reads:

"Pulp wood, mechanically ground; pulp of wood, chemically bleached or unbleached; news print paper, and other paper, and paper board, manufactured from mechanical wood pulp or from chemical wood pulp, or of which such pulp is the component material of chief value, coloured in the pulp, or not coloured, and valued at not more than 4 cents per pounds, not including printed or decorated wall paper, being the products of Canada, when imported therefrom directly into the United States, should be admitted free of duty on the condition precedent that no export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise), or any prohibition or restriction in any way of the exportation (whether by law, order, regulation, contractural relation, or otherwise, directly or indirectly), shall have been imposed upon such paper, board, or wood pulp or the wood used in the manufacture of such paper, board or wood pulp, or the wood pulp used in the manufacture of such paper or board. "

In the case of the American Express Company vs. U.S. (T.D. 33434) and the case of the Cliff Paper Co. vs. U.S. (T.D. 33435) both decided by the Court of Customs' Appeals, it was held that Section 2 was operative though Canada refused to avail itself of the opinion to establish reciprocity as to any other possible importations provide for in the Act.

James Bicknell, senior member of the law firm of Bicknell, Bain and Strathy, of Toronto, Canada, was introduced as a witness. He stated that he was counsel for the protestants, the Spanish River Pulp and Paper Mills, Ltd., and qualified as an expert on the laws of the Dominion of Canada. He stated that he was also a director of the Spanish River Company. In his testimony he produced the agreement made on November 25, 1912, previously quoted. Mr. Bicknell represented the Crown in all matters where grants have been made by His Majesty. He stated that no laws of the Dominion of Canada make any restrictions against the exports of pulp wood in these cases.

After studying the agreement, the appraiser further said:

"The agreement purports to remove all prohibitions and restrictions against the exportations of wood cut on the lands therein described, upon the conditions that the said company shall equip and continuously operate a specified number of paper machines, that it shall manufacture at least a specified quantity of pulp and paper, and that it shall employ at least a specified number of hands in the forest.

The witness for the importers, Robert James Ward, stated that all of these conditions were fulfilled by his company, the Spanish River Pulp and Paper Mills, Ltd., and the following letter was introduced as evidence:

Toronto, Dec. 3, 1912.

Mr. H. Watson, Esq., V.P.,
Spanish River Pulp and Paper Mills, Ltd.,
Toronto, Ont.

Dear Sir:—In answer to your inquiry I beg to say the privilege of exporting pulp wood conferred by the government upon your company by agreement dated Nov. 25, 1912, became by that agreement immediately effective, and your company has since the making of that agreement been and is now at liberty to export pulp wood free from any restriction.

Yours truly,
W. H. HEARST,
Minister of Lands, Forests and Mines.

ELECTROLYTIC BLEACH: ITS PREPARATION AND EFFECT.

By Thos. Hadfield.

There are many processes, patented and otherwise, for the manufacture of sodium hypochlorite; but for simplicity of construction and working arrangements, the following process is readily understood. The solution of sodium hypochlorite is prepared by the electrolysis of solutions of salts of varied concentration. A suitable amount of brine is dissolved in water in a large basin made of earthenware, stone, or wood. The salt solution is passed through a fine sieve to remove matters in suspension, and the clear solution is conveyed into a refrigerator, which forms part of the electrolyser. The refrigerator contains a coil of copper piping through which water runs. The liquid is then pumped from the refrigerator into the electrolyser by a small centrifugal pump, and there under the action of the electric current the solution is transformed into a concentrated solution of sodium hypochlorite ready for immediate use; connected with the electrolyser is a tank for storing the bleaching liquor.

In some cases, when the liquor is stored for a considerable length of time, it is necessary to augment the concentration before use by passing the liquor through a voltameter. The various processes in the manufacture of sodium hypochlorite are based upon the above principle, but the mechancial arrangements vary as regards construction. In some methods the solution is conveyed through from twelve to twenty different compartments containing the electric current, and the degree of concentration is increased according to the number of compartments the salt liquor passes through.

The temperature of the liquor is also increased according to the number of compartments, but it must be taken into consideration that the greater the number of compartments the higher the cost of production as more electricity is used, and yet the maximum concentration of the liquor is not always attained. The cost of production depends upon:

(a) The concentration and nature of the salt solution;
(b) Cost of electricity and how generated;
(c) The construction and working of the plant.

In the electrolytic production of sodium hypochlorite, the following action takes place: The apparatus is filled with a solution of salt, which is subjected to the action of the electric current; as a result a sodium solution is formed by the negative and a corresponding amount of chlorine gas by the positive electricity. The chlorine gas combines with the sodium:

2NaHO-|-Cl2—NaClO2-|-H2O-|-NaCl.

The solution of sodium hypochlorite is diluted according to the material requiring treatment, and whether this requires to be half bleached or fully bleached. The following are some of its advantages and properties:

1. Its bleaching power is considerably greater than calcium hypochlorite.

2. The stuff looks better, whiter, more pliable, and the material bleached is not rough to touch as when chloride of lime is used.

3. The bleached material is slightly increased in strength as NaClO2 is milder in its action, and does not damage the stuff.

4. Better results are obtained at a lower cost, and a saving of active chlorine can always be effected.

5. In many cases little or no acids are required to assist the bleaching, and this also means considerable economy.

6. The loss of fibre is less than with chloride of lime.

7. None of the objectionable features of chloride are noticeable. There is never any harmful chloride of lime deposit in the pulp. The dust which arises when dissolving the chloride of lime is very bad for the lungs, and workmen who are continually in such an atmosphere ultimately get emphysemia; therefore workmen have not the objections to working with electrolytic bleach as they have with chloride of lime.

8. The method of bleaching is exactly the same as with chloride of lime; so that no alteration is necessary as regards the existing apparatus, or in the old-established routine of the work.

9. The pulp usually bleaches more quickly and always more uniformly. This means turning out more and better stuff.

10. It is clean, convenient, has no corrosive action, and little room is required for the plant.

11. It contains no lime or magnesium salts, therefore there are no injurious by-products to remove or neutralise as with chloride of lime.

12. Highly lignified fibrous material can be bleached without chlorination of the fibres taking place; when chloride of lime is used further treatment and washing is required in order to remove or prevent chlorination of the fibres.

13. Its action is efficient as regards removing ink or dye from linen or cotton rags, and the paper made from half-stuff which has been bleached with NaClO2 retains its colour, strength, and is more durable than with any other bleaching solution.—Paper Making.

NEW TARIFF SOON OPERATIVE.

(Special to Pulp and Paper Magazine.)

Washington, D.C. August 27, 1913.

Chairman Simmons of the Senate Finance Committee to-day predicted the Senate could complete the pending tariff bill and pass it by September 5, and that the measure would be finished by the conference committee and signed by President Wilson on or before September 16.

Democratic leaders say there will be no break in their ranks, and that there is no chance of the bill being changed in any of its important details. To hasten its completion many of the democratic members of the Finance Committee have been meeting each night for the past week to take up unfinished schedules, and a caucus of the Democratic Senators is expected to be held the latter part of the week to pass on changes that the committee may recommend.

The free list has been completed and the Senate will have to recur on several paragraphs in the wool schedule which were passed over. The paper and book schedule went through rapidly Monday, the main protest being by Seantors Lodge and Weeks, of Massachusetts. Senator Lodge urged countervailing duties against Canada, and Senator Weeks was for protective rates in general—even for print paper. The moving of the paper industry to Canada was generally feared by these two Seanators. The sundry schedule and the income tax is all that now remains to be taken up before the bill is passed to the conference committee.

So far more than six weeks have been devoted to consideration of the Bill in the Senate, and the progress is causing more than ordinary worry, as when the Bill was brought to the Senate it was freely predicted that it would be rushed through and go to the conference some time in August. Wagers are now being made here that the bill will not be enacted by the present Congress. To close followers of the tariff, however, these wagers seem foolish, but a number have already been made, and they tend to show the chaotic conditions in which the Democratic party appears to be in.

For several days dangerous bush and timber fires were raging in the Haliburton, Parry Sound, Northern Victoria and Muskoka districts which threatened to do great damage but recent rains quenched the flames and now all danger is past. Only a few smoldering fires are now left in dried out swamps and around stumps and logs. For some days the Ontario Department of Lands, Forests and Mines was in an anxious state regarding the amount of damage. Aubrey White, Deputy Minister, stated that they had on the lands of the Crown railways, forest reserves, etc., 575 rangers on duty with supervising rangers in charge. On licensed lands the licensees had about 300 rangers making a staff of nearly 900 men in all. Mr. White further stated that during a summer as parched as the past one, when the forests were as dry as tinder, it was impossible to guard against the carelessness of individuals over a territory of some 250,000 square miles when the dropping of a match or a cigarette might cause a serious conflagration. There were no forest fires of any serious character in forest reserves and very little damage had been done to them or along railways where the provincial fire rangers have supervision. During the fires all timber licensees were notified to take prompt measures to get the fires under control.

Ritchie and Ramsay, Limited, coated paper manufacturers, Toronto, who have recently opened a warehouse in Montreal, have appointed J. M. Hampshire as their representative in that city.

TREASURY DEPARTMENT DELIN IN MAKING REFUNDS.

(Special to Pulp and Paper Magazine.)

Washington, D.C., August 26, 1913.

According to press dispatches received here from various paper making sections throughout the country, the Treasury Department is being severely criticized for its red tape policies and its delinquency in making the refunds on duties paid on pulp and paper shipments from Austria-Hungary, Germany, Norway and Sweden. Two weeks ago the Department of State reported to the Treasury Department that the status of Sweden is identical with that of Norway in respect to the most favored nation treaties, and the Treasury immediately issued the following order to Custom Collectors:

"The Treasury Department has been informed by the State Department that the treaty status of Sweden is the same as that of Norway, with respect to the most favored nation clause. This information was given in connection with the decision of the United States Court of Customs Appeals, dealing with the importations of wood pulp and print paper from countries other than Canada. Inasmuch as that decision did notmention Sweden as one of the countries to be benefited, the Department refused to order a refund of duties upon entries of wood pulp therefrom. However, in view of the State Department's advices, instructions have been transmitted to the Collectors of Customs that the principle of the court's decision may be applied to importations of the merchanise in question from Sweden. This applies to future importations as well as those heretofore made. The Department has not yet received advices from the State Department in regard to the other countries not specifically mentioned in the court's decision."

Apparently there was some misunderstanding in certain quarters as just what part the Department of State had to do with the pending cases. That Department was requested by the Treasury Department to merely investigate and report as to what countries have existing treaties with the United States containing favored nation clauses, and therefore amendable to recent decision of the Court of Customs Appeals. As far as the question of importations of pulp from Sweden, Norway and Germany, made from Russian wood, is concerned, it can be stated at the outset that that point is not now being considered by the Department. The identical principle involved in this instance has heretofore been passed upon in many similar cases. The question of the admission of merchandise of any description, imported from one country, being a product of another, has been decided in various lines for many years; and it has been uniformly held that the United States has a treaty, say with Germany, the terms of which admit free of duty commodities grown and made in that country, the treaty cannot be evaded by shipping through articles which were manifestly not grown or made in that country.

The most important subject now under discussion is the letter which Assistant Secretary of the Treasury, C. S. Hamlin addressed to the Collector of Customs at the Port of New York last week. This letter reads:

"Referring to T. D. 33656 and 33671 of the 28th of July and 8th of August, I have to state that the question as to whther wood pulp imported from various European countries, which has been transhipped enroute, is freed of duty under the decision of the Court of Customs Appeal in T. D. 33434 will be submitted to the Attorney General for an opinion.

"You will therefore, until further notice, refuse to admit free of duty all such pulp and paper when transhipped enroute, and will suspend liquidation of all entries covering such merchandise until further instructed by the Department."

It certainly appears that the Treasury Department is using every technical point it can in evading the putting in force of the decision of the Customs Court of Appeals. Shipments of pulp and paper from Sweden cannot conveniently be made direct, but are made on direct Bills of Lading to New York, Boston and Philadelphia, via Hamburg. Following the order to admit Swedish pulp and paper free such shipments were immediately passed through the ports, but when this technicality was discovered the importers were immediately billed for the duties on their shipments. This has caused considerable trouble and the importers are complaining bitterly of the tactics of the Treasury Department which is the recipient of numerous caustic letters of protest.

The action of the Treasury Department is understood to be based upon the wording of Section 2 of the Canadian Reciprocity Act of July 26, 1911, upon which the decision in the favored nation cases is founded. In Section 2 the wording reads that pulp and paper "being the products of Canada, when imported DIRECTLY into the United States, shall be admitted free of duty." The fact that pulp made in Sweden and sent by coastwise steamer to Hamburg, or any other port in another country for shipment to this country, should not make it an indirect shipment is the contention of the importers, when it is taken into consideration that the shipments come through on the original Bills of Lading, with the original packings untouched.

This matter still rests in the hands of the Attorney General and no action has so far been taken in the matter.

TIMBER ROYALTIES IN B.C.

Hon. W. R. Ross has been appointed special commissioner to enquire into the question of timber royalties for the Province of British Columbia and will hold sessions in various districts of British Columbia during this month.

In addition to the public hearings all those connected with the industry will be asked to submit their views in writing. Last session when the Forest Act was under consideration certain proposals were brought down for a readjustment of royalties. Owing to representations made by the timber interests the conviction was reached that so important and complex a question should be more fully investigated and the present commission is the outcome of this decision. When all the evidence has been collected the necessary amendments to the Forest Act will be drafted and ready for the forthcoming session of the legislature.

Ontario is about to enter upon a more aggressive and better organized forestry programme, and steps will be taken to more adequately protect the wooded wealth of the province. E. J. Zavitz, Forestry Commissioner for the province, is making a thorough study of the whole question and, at the request of Hon. W. H. Hearst, Minister of Lands, Forests and Mines, will make a report of a plan to be adopted at an early date. It is learned that the fire ranging force of the province will be strengthened and better equipped and that fire belts may be cut through the most valuable stretches of pine forests. A more efficient patrol will be maintained and rigid prosecutions entered against all those who violate the forest regulations. The fire protection policy will co-ordinate with the reforestration scheme now under way. By means of fire belts it is believed that, when a blaze breaks out and strikes one of these belts, it will prove a buffer and that the flames will stip from lack of material to feed them.

NEW PATENTS

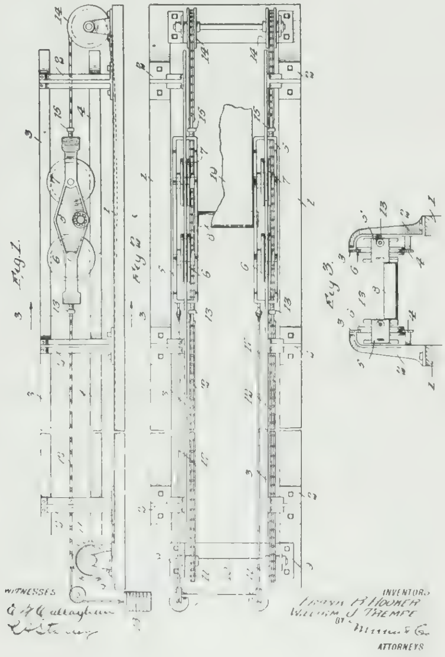
All patents are specially comyiled for the PULP & PAPER MAGAZINE. Those of United States are by Davis & Davis, Patent Attorneys, Washington, D.C. Full particulars with drawings may be had by addressing the Commissioner of Patents, Washington, D.C., enclosing five cents per patent. Canadian patent particlulars may be obtained from the Patent Office, Ottawa. In all cases give number of patent. We also carry brief descriptions of important English, French and German patents.

AUTOMATIC FELT-TIGHTENER FOR PAPER-MAKING MACHINES.

By Frank B. Hooker and William J. Trempe,
of St. Johnsbury, Vermont.

U.S. Pat. No. 1,069,257. Patented Aug. 5, 1913.

This invention relates to improvements in automatic felt tighteners for paper-making machines, and it consists in the constructions, combinations, and arrangements herein described and claimed.



An object of our invention is to provide an improved device over that disclosed in the patent to William J. Trempe, No. 934,857 of Sept. 1, 1909. The said improvements consist in certain changes in the mechanism which renders the device less liable to bind.

A further object of our invention is to provide a device using less tension weights than the older form, and one which is more durable.

A further object of our invention is to provide a device to take the place of the rack and gear mechanism of the older device which we found to clog up with dirt and oil, thereby necessitating frequent cleaning, and being hard to operate.

Other objects and advantages will appear in the following specification and the novel features of the invention will be particularly pointed out in the appended claims.

In the accompanying drawings fig. 1 is a side view of the device, fig. 2 is a plan view thereof, and fig. 3 is a section along the line 3—3 of fig. 1, looking in the direction of the arrows.

Referring now to figs. 1 and 2, the lower plates of a paper making machine are shown at 1. Upon these plates we arrange brackets 2, each carrying an upper guide rail 3 and a lower guide rail 4, as shown in fig. 3. Arranged to run between the upper and lower guide rails 3 and 4 is a rectangular frame 5 of the shape shown in figs. 1 and 2 bearing a pair of flange wheels 6 and 7. The flanges of these wheels are arranged to engage the upper and lower rails as shown in fig. 3. There are two of these frames, one on each side of the machine. The felt roller 8 is carried between the opposed frames 5 being journaled in these frames in any suitable manner, ball or roller bearings being preferably used. At one end of the frame 1 are the uprights 9, which support a common shaft 10 for a pair of sprocket wheels 11. These sprockets have individual chains 12 which are attached to their respective frame members 5 on opposite sides of the machine by means of adjusting screw bolts 13. The chains 12 extend around their sprockets, thence forwardly and around idlers 14 on the opposite end of the machine, and are attached to the opposite ends of the frames 5 by similar adjusting screws 15. The cables 17 which are attahed to the ends of the frame members 5 are designed to also be under the tension of weights 18.

From the foregoing description of the various parts of the device the operation thereof will be readily understood.

The felt 19 is passed around the roller 8, and it is the purpose of the invention to keep this felt always taut. As the felt is stretched the slack is taken up by the weight 18, both ends of the roller 8 moving to the same extent on account of the sprocket and chain construction. The mounting of the roller 8 on ball bearings also serves to permit the easy running of the roller. If either of the chains become loose, the tension may be adjusted by turning the adjusting screws 13 or 15 at either end of the frames. Moreover the position of the chains with respect to the sprocket may be adjusted with or without varying the tension. Thus if the adjusting member 13 is loosened and the adjusting member 15 is tightened to the same extent the position of the sprocket chain with respect to the teeth of the sprocket wheel may be changed without varying the tension. Thus the position of one movable frame with respect to the other may be shifted so as to bring said frames exactly into alignment.

PRODUCTION AND TREATMENT OF MECHANICAL WOOD-PULP.

By ANDERS NICOLAY ANDERSEN, of Hougsund, Norway.

U.S. Pat. No. 1,068,092., Patented July 22, 1913.

This invention relates to the production and treatment of mechanical wood pulp and has for its object certain improvements whereby a pulp of uniform quality is obtained.

The production of mechanical wood pulp, as is well known is effected by grinding decorticated logs of wood in lengths of 1-3 to ½ meters which are placed in the grinding apparatus in such a manner that the grinding takes place laterally of the log at right angles to the direction of the fibers. The wood to be ground is placed during the grinding operation in grinding boxes, in which it is held up against the grindstone with a suitable pressure under the influence of a piston. When the grinding box has been emptied, the piston has to be restored to its initial position and fresh wood filled into the boxes. This working method involves various inconveniences. Thus the putting out of work of the several grinding boxes, which is necessary at certain intervals, causes irregularities in the operation of the grinding apparatus and the compensation hereof necessitates adjusting devices of partly complicated and expensive construction. Further the use of wood in large pieces causes unevenness in the pulp obtained because the water supplied during the grinding operation will not be capable of producing a uniform moistening of the wood to be ground throughout the entire mass of the same.

Now the present invention has for its object a process of producing mechanical wood pulp, by which said inconveniences are avoided. This is attained by chopping the wood to be ground into chips in a similar manner as is usual in cellulose factories, before it is supplied to the grinding apparatus. The wood thus split up is then by continually working feeding devices fed to the grinding apparatus and is forced by suitable devices up against the grindstone with a uniform and controllable pressure. The operation may by this process be made completely continuous and the stress on the grinding apparatus uniform, while at the same time a practically uniform moistening of the material to be ground and consequently uniformity of the product is attained. Moreover the result is attained that the wood to be ground can be subjected to a preparatory treatment before the grinding, for instance with boiling water or chemicals for softening the wood and extracting certain constituents, etc., thereby greatly facilitating the grinding operation and enabling the quality of the pulp to be controlled. To still further promote the uniformity of the pulp, also the treatment of the mass coming from the grinding apparatus is performed in a special manner.

In the processes commonly used the mass coming from the grinding apparatus is delivered to a sorting apparatus, in which the chips are collected and the coarser portion of the mass separated to be conducted through a refiner, the finer portion of the mass, which passes through the fine-meshed strainer, being conducted directly to the pulp machine. In contradistinction to this manner of treatment, according to the present invention the whole amount of mass, after being freed of chips, is passed through a disintegrating apparatus of suitable construction and from thence to the pulp machine.

In the accompanying drawings Figure 1 shows a longitudinal section of a grinding apparatus adapted for carrying out the present process, and Fig. 2 illustrates diagrammatically how to suitably arrange the apparatus necessary for carrying out the process.

In a feed cylinder 2 provided with a feed hopper 1 (Fig. 1) is arranged a screw conveyer 3 by means of which the chips fed through the hopper 1 are pressed up against the grindstone 4. The end of the cylinder 2 opening toward the grindstone, is inclosed by two stones 5 and 6 which are kept pressed up against the grindstone thereby preventing whole chips from passing with the grindstone out of the feed cylinder. The chips may suitably be conducted into the hopper 1 through a supply tube 7 widening towards it lower end.

The disintegration of the mass is suitably effected in an apparatus having horizontal rotating cast iron or steel disks. By adjusting the pressure between the grinding disks the degree of fineness of the mass can be controlled, and since the whole of the mass passes through the disintegrating apparatus, a far more uniform product is obtained in this manner than by the usual process in which several differently treated portions of the mass are supplied to the pulp machine.

The inventor claims:—

1. The process of manufacturing wood pulp which comprises cutting wood into chips, grinding the chips into small particles, suspending the ground particles in water, separating the fine particles and water from the coarser particles, and separating the fine particles from the water.

Fig.1.

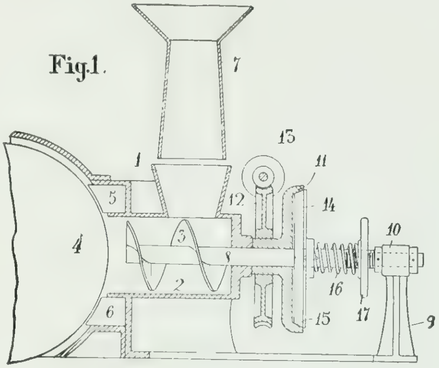
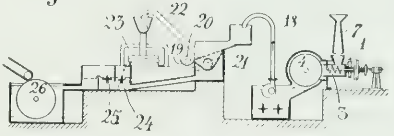


Fig.2.



2. The process of manufacturing wood pulp which comprises cutting wood into chips, grinding the chips into small particles, suspending the ground particles in water, separating the fine particles and water from the coarser particles, separating the fine particles from the water, and disintergrating the fine separated particles.

3. The process of manufacturing wood pulp which comprises cutting wood into chips, grinding the chips into small particles, suspending the ground particles in water, separating the fine particles and water from the coarser particles, separating the fine particles from the water, disintegrating the fine separated particles, and mixing the disintegrated mass with the water separated from the fine particles.

4. The process of manufacturing wood pulp, which comprises chopping the wood to be ground into chips, grinding the chips into small particles, suspending the ground particles in water, straining the finer particles and water from the larger particles, straining the water from the finer particles, disintegrating the latter, mixing the disintegrated mass with the strained water, and removing the mixed mass to a pulp machine.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

The Green Bay Barker Company, of Green Bay, Wis., has produced a new barker for use on hemlock wood, and the first one is now in use at the plant of the Green Bay Paper Fibre Company. The new type of disc barker is not like the rotary machine the company has been making for several years. The one now in use at the Green Bay plant is being used for experimental purposes, with a view to improving it both in points of strength and general serviceability. It is believed by those who have observed it that it will fill a long felt need in mills where hemlock is used extensively. The Barker company has recently begun the manufacture of the barker of the old type in Canada.

* * * *

Employees of the International Paper Company's mills along the Black River numbering over two hundred went on the first annual field day and picnic Saturday, August 16th, of the Watertown Papermakers' Union. The picnic was held at Six Town Point near Campbell's Point, and the committee in charge of the events and outing were Earl Demster, James Keegan and Edward Yerington. Many paper makers from other mills in the section also attended the outing.

* * * *

L. N Austin, formerly an Otsego paper maker and well known to the paper industry in Ohio is interested in a paper mill project at Winnipeg, Canada. It is proposed to make paper out of flax straw. Mr. Austin, who has made an investigation of conditions in that section believes that it is an excellent market for paper such as can be made from flax straw.

* * * *

The Crescent Paper Company, of Marseilles, Ill., will close down soon for a period of two weeks for the purpose of installing a new 300 horse power water wheel and to make general repairs throughout the mill. The repair work will be rushed as rapidly as possible, as business is exceedingly good and the company is behind with its orders. When the improvements are completed the company will be in a position to take care of its rapidly increasing business.

* * *

The Hoffman-Youmans Paper Mills of Baldwinsville, N.Y., which were closed down early last month to complete the installation of three new water wheels and build a new flume and power house, have about completed their new improvements and will resume operations in a few days, manufacturing a full line of tissue, wax tissue and roll toilet paper. The company expects to later go more extensively into the plain and printed wax paper products in various weights and colors.

* * *

N. H. Carpenter, who for the past five years has been general manager of the Fairfield Paper Company, of Baltimore, Ohio, has resigned to take up the duties in a similar position with the Coshocton Straw Paper Company, of Coshocton, Ohio. Mr. Carpenter's friends in the trade will be very glad to welcome him, as he will be representing one of the best equipped mills in the west which is manufacturing corrugating products.

* * * *

The first summer school of forestry in the State of Maine under the auspices of the State University is now in session at Princeton, Me., under the instruction of Prof. John M. Briscoe, head of the department of forestry at the University of Maine. Accommodations and arrangements were made for twelve students, although several more aplications were filed. Professor Briscoe is assisted by Instructor Brewster. This is one of the most practical summer schools in the State, and it is expected that a great deal of benefit will be reaped from it.

* * * *

The report that the Carthage Sulphite Pulp and Paper Company is planning to manufacture ice cream boxes and oyster pails has been vigorously denied by James A. Outterson, Jr., of that company. Mr. Outterson says that while the mill has always made the stock for oyster pails and ice cream boxes, the company had never considered installing machines for making the boxes themselves. "I can't understand where this rumor originated, for there is no truth in it." he said.

* * * *

For the first time in their history from this cause the mills of the International Paper Company, South Glens Falls and Fort Edward, N.Y., were shut down on account of low water last month. They, however, have resumed operations. The water in the Hudson River reached the low water mark and unless rain falls in an abundant quantity soon, manufacturers along its banks who depend upon water power will suffer a heavy loss. The Allen plant and Fenimore mill of the Union Bag and Paper Company of Hudson Falls were forced to shut down a few days ago, and considerable inconvenience was caused other concerns which depend upon the Union Bag Company for electricity. The situation is more serious than it has ever been. The Hudson, which five months ago was a raging torrent, swollen by the heavy spring rains, is now little more than a brook. In fact, in some places it is no more than ten feet deep from shore to shore. Very little rain has fallen in this vicinity in several weeks, and all the manufacturing establishments have been seriously affected. The Corinth plant of the International Paper Company is running only five days a week, and the same scheme has been followed in the local mill and the Fort Edward plant.

* * * *

The Penobscot Chemical Fibre Mills at Great Works, Me., began a five-day week on August 15 and will be shut down on Saturdays and Sundays for a short time. The mill reports about the average amount of orders at present, but the storehouses of the plant are fairly well filled, and it has been thought best to slack down on production for a short time and decrease some of the stock on hand.

* * *

The property and franchises of the Mount Holly Paper Company, Mount Holly Springs, Pa., will be offered at public sale at the offices of the company on Saturday, Sept. 6. The mill owned by the company together with all equipment and real estate will be sold. Part of the land has been occupied as a park by the Cumberland Railway Company for some years. The property will be offered for sale as a whole or in parts.

The Hampden Glazed Paper Company, of Holyoke, Mass., is planning to have a new three story addition to their plant erected. The building will be attached directly to their present structure, and will be of up to date mill construction throughout. The company is also planning extensive alterations in its main office. The contract for the erection of the new building and the alterations on the mill has been awarded to the Ranger Construction Company, of Holyoke. The work will cost about $25,000.

George C. Sherman, of the St. Regis Paper Company, with his family and several friends returned to Watertown, N.Y., early last month from a cruise down the St. Lawrence through the Northumberland Straits between Prince Edward Island and New Brunswick, then on through the Strait of Gutacauso, which lies between Cape Breton Island and Nova Scotia, and thence into Bras D'Or Lake through St. Peter's Canal. The Sherman party was favoured by excellent wather. This was Mr. Sherman's seventh trip over this course, and he claimed it was the most delightful. The Wana is equipped with wireless and Mr. Sherman said that it proved intensely practical. They used it constantly throughout the trip, getting messages from all directions.

The Turpentine and Rosin Export Company, a concern with heavy financial backing, which will undertake to handle as much as possible of the business of the recently suspended American Naval Stores Company, has been effected at Jacksonville, Fla. The following officers were elected: President D. M. Flynn, Jacksonville; Vice-president, J. A. G. Carson, Savannah; second vice-president, W. J. Kelly, Jacksonville; Secretary and treasurer, J. B. Rogden, Jacksonville; directors, M. G. Wade, John E. Harris, M. M. Flynn, W. F. Coachman, W. J. Kelly and D. R. McNeil, of Jacksonville; J. A. Carson, H. L. Kayton, J. W. Motte and W. W. Wilder, of Savannah,and H. G. Eastburn, of Wilmington, Del. The company is capitalized at $1,000,000. Agencies will be opened in all of the important centres of the world. The company will have joint headquarters in Savannah and Jacksonville.

Announcement has been made by the management of the Keyes Products Company of Uncasvill, Conn., which sustained a heavy loss by fire a couple of weeks ago, that it has already made preparations to rebuild at once. The work of removing the wreckage of the fire was begun shortly after the fire and already several contractors are making estimates on the cost of rebuilding. Instead of a wooden building as before, the company contemplates making it of brick or concrete construction, and as the business was growing the new part will be somewhat larger than the burned portion. The burned machinery is little better than junk and a complete equipment of new machinery will have to be installed. This will be done under the supervision of the new superintendent, James R. Bolger, who has had considerable experience in this line of business. At present the company is filling some orders from stock which was stored in the old part of the mill.

The paper mill operated by McIntyre Brothers, at Fayetteville, N.Y., has just undergone a number of improvements.

OTTAWA NOTES

Ottawa, Ont., August 26.

E. B. Eddy, grandson of the late E. B. Eddy, who founded the E. B. Eddy Company, Ltd., of Hull, Que., one of Canada's largest pulp and paper and fibreware manufacturing companies, has made an assignment for the benefit of his creditors. Mr. Eddy's liabilities are $135,000 and there are no assets. Under his grandfather's will be was bequeathed $750,000 on condition that he change his name from Ezra Butler Bessey to Ezra Butler Eddy. He promptly carried out this condition and set up in business as an advertising agent on a large scale but has come to grief. As he will not obtain his grandfather's money until 1916 his creditors will have to wait until that time for payment.

The Dominion Government is bringing suit against the Vancouver Lumber Company, the suit to be heard in the Exchequer Court at Ottawa on Sept. 2. Possession of Deadman's Island, a heavily-timbered property near Vancouver worth millions, and now sought by railway companies for terminal purposes, is desired by the government. The Vancouver Lumber Company claims the former government leased the property to them but as against this the present administration declares the lease was not properly signed and the former minister of militia, Sir Frederick Borden, and possibly other ex-ministers, will probably be called upon as witnesses in the case which is of much interest to lumber and paper men.

Local lumbermen are paying higher wages this year to men going into the woods than ever before. The average wage in 1912 paid in the Ottawa Valley was from $28 to $32 whereas it runs from $30 to $35 to-day. Labor, however, is by no means scarce in spite of the fact that larger numbers of men are being sent to the woods.

By a decision of the Railway Commission the dispute over the freight rates on a number of commodities, paper of all kinds included, from Fort William to Regina westward, which has been in progress between Regina shippers and the railways, has been merged in with the Western freight rates inquiry which comprehends the whole scope of alleged discrimination in Western rates. The Regina shippers allege that the railways give better rates out of Winnipeg in favor of the Winnipeg jobbers than from Fort William.

Lumber and pulp and paper interests state that accommodation on vessels sailing in the export trade to Great Britain was never so hard to get as at the present time. One local lumberman has had several carloads of lumber waiting at Montreal for nearly two months owing to inability to obtain space for transportation. Applications to railway and steamship companies bring no results, local interests state.

Of great interest to small sawmill and pulp mill operators is an order-in-council just passed which gives the minister of the interior power to lease water powers in forest reserves, parks, etc., of a maximum development of 200 horse power. The lease may be made for ten years, renewable at the discretion of the minister and is to enable farmers and small operators to obtain power.

J. R. Booth and the E. B. Eddy Company, two local pulp and paper firms, have announced that their cuts of spruce this year will be very heavy. The Eddy Company, which will have a new pulp mill completed in a few months, will cut thousands more spruce logs than in 1912. The Booth firm as already announced intends making a record cut of the same class of wood as well as a large quantity of pine.

News despatches received here tell of a narrow escape from incineration by R. H. Campbell, superintendent of the forestry branch of the Interior Department. Mr. Campbell is on one of his regular western trips on departmental business and was sleeping in a hotel at Athabasca Landing when it caught fire. He threw his belongings out the window and then made his way to safety down the fire escape. The hotel was completely gutted by the fire.

Thousands of dollars worth of valuable spruce and other kinds of timber, principally pulpwood, have been destroyed in bush fires which raged around Ottawa district for almost two weeks previous to the last heavy rains. Large fires were those around Kazuabazua, Que., Mer Bleue, Ont., and in South March, a few miles from the city, and for days Ottawa streets were dim with smoke. The burned district extended all the way from the city along the different railway lines eastward toward Montreal and south to the United States border. North of Peterboro, Ont., the Peterboro Lumber Company suffered heavy damage in their large timber limits in that district.

Pulp and paper shippers who had awaited with interest official pronouncement as to the proposed increase in Intercolonial Railway freight rates have no longer any reason for doubt as to its nature. A general increase of ten per cent. is to be made but Hon. Frank Cochrane, Minister of Railways, has assured shippers that contracts based on the present rates will be honored until their expiration. Even when the increase is made the Intercolonial freight tariffs will be the lowest in the Dominion, the reason for the ten per cent. advance being increased operating cost.

LONDON WEEKLY LETTER.

There are indications that the chemical pulp market in Sweden is weakening. It is, of course, no news to say that an enormous amount of pulp has been held back and that deliveries have been suspended not only in America but throughout Europe, owing to difficulty in freights and, to a small extent, to labour troubles. It is also fact that a number of British mills are not to-day as busy as is generally believed, and one eminent authority said quite recently that Swedish pulp men are presisting in what is really a well-maintained and scientific game of "bluff."

It is also a fact that in London and Manchester this week there has been a tendency on the part of agents to find customers, particularly for easy bleaching pulps, but such is the easy-going nature of the market that paper makers are not at all disposed to buy; a pretty clear indication that, for the present at least, the majority of important mills in England and Scotland are well bought.

It appears from reports issuing from Gottenberg and Stockholm that there are also evidences that some of the big producers of chemical pulp are in, what paper makers would describe as, a more reasonable frame of mind, and reports have appeared in journals published on the Continent of Europe to the effect that Finnish developments are causing the Swedes some concern. On the other hand, it is probable that the effect of Swedish developments will be more particularly in the direction of cheap pulps and cheap paper, and the tendency in Finland is to produce paper on the spot and to cater particularly for the Russian market, which is one of great possibilities; therefore too much importance must not be attached to these reports as likely to have a weakening effect in regard to chemical pulps from Scandinavia.

A good deal of difference of opinion exists in Europe in regard to the probable effect of the duty being removed from European imports into the United States, but the prevailing opinion amongst men of weight is that the effect will only be temporary, and that the general tone of the market is not likely to be affected for any considerable period. A Christiana correspondent says that the delay in accepting deliveries in America is affecting chemical pulp producers in Norway to an extent they do not relish, and that some of the heaviest consumers in the States are holding off until the tariff question is finally settled, and another authority says that buyers of Scandinavian pulps will be very well advised to cover themselves for requirements "before there is a likelihood of an American rush for pulp," as the Americans are at the present time buying and taking deliveries from hand to mouth only. It is admitted by the leading organ in Norway that some large contracts for sulphite have of late been closed at a slight reduction in price, and this is attributed to the fact that a number of chemical pulp mills in Norway are supposed to have made advantageous coal contracts for 1914 on favourable terms.

As a sign of the times it is worth noting that "Farmand," which is an inspired organ, says that not only is there no prospect of any downward tendency, but the real question is how much will chemical pulp increase in price, in the near future? Personally, I do not share this view, but maintain the opinion that unless something very unforseen happens there will be no material alteration in price during this year at least. One of our largest buyers told me a few days ago that there is sulphite in the market if people will pay the price, which, at the present time, they do not seem disposed to do. So far as I can learn of actual business transacted there has been rather an easier tone, and I am of the opinion that anyone who is really anxious to buy sulphite can do so to-day to a limited extent either in Norway or Sweden.

Current prices are:

	£	s.	d.	£	s.	d
Sulphite, Bleached	11	10	0	12	15	0
Sulphite, Easy Bleaching, 1st quality	9	7	6	9	15	0
Sulphite, "News," or Strong 1st quality	8	10	0	8	15	0
Soda, Unbleached, 1st quality	8	10	0	8	15	0
Soda, Unbleached, Strong	8	2	6	8	10	0
Soda, Kraft	8	2	6	8	10	0

"Long Ton"	"Short Ton"
$56.06—$62.16	$50.05—$55.50
45.70— 47.53	40.81— 42.44
41.44— 42.66	37.00— 38.09
41.44— 42.66	37.00— 38.09
39.60— 41.44	35.36— 37.00
39.60— 41.44	35.36— 37.00

Standard Wrapping Machines, Limited, with a capital of $220,000 divided into 2,200 shares of $100 each, of which 200 shares is preference stock, have been granted a charter. The head offices of the company are in Toronto and the incorporators are John P. Northey, Thomas H. Plummer, Arthur P. Holden and Philip Morgan, engineers and George Broughall, all of Toronto. The company are empowered to deal in inventions or devices for or in connection with the wrapping of articles or commodities and to manufacture and deal in machinery, appliances, equipment, material or supplies for such purpose. The company have completed and patented an up-to-date bread-wrapping machine, which is being placed on the Canadian market and for which a number of orders have already been received from leading bakers.

PULP AND PAPER NEWS

Work on the new plant of the Beaver Board Co. at Thorold, Ont., is going ahead rapidly and part of the machinery which will be installed is already on the ground.

It is reported that the Chicoutimi Pulp Company will shortly make an issue of securities in London. The capital stock of the company is $1,000,000 and the funded debts amount to $723,500.

A plant is now in operation in Minnesota using straw for paper-making. The straw is cooked with caustic potash instead of caustic soda. The pulp is bleached and good paper is being made right along.

The big planing mill of Oscar C. Teal, a contractor at Bridgeburg, Ont., was destroyed by fire a few days ago together with several piles of dressed lumber. The loss is estimated at $20,900 and is only partially covered by insurance.

The new news print mill of the Ontario Paper Co. at Thorold is about to start operation. The company have some 12,000 cords of pulpwood on hand, the most of which has been brought in from Anticosti by barges down the St. Lawrence River and through the Welland canal.

About two hundred publishers from various parts of Canada several of whom were accompanied by their wives, attended the annual "Press Day" at the Canadian National Exhibition. They were give a cordial welcome by the management and the various exhibits proved decidedly interesting to the visitors.

The Stanley Paper Company has recently been formed in Calgary, Alta., under the management of Mr. Jack Stanley, formerly connected with the J. C. Wilson Paper Co. and later with the Edgar, Palmer & Stanley Co., of Clagary. The firm handles butchers' paper, wrapping paper, toilet paper, stationery and sundries.

As a result of bruise received while measuring lumber in in his yards at the foot of Bathurst Street, Toronto, Richard Hassall died recently. He had been a resident of Toronto for thrity years and was in partnership with W. Richardson in the lumber business. Mr. Hassall is survived by two sons and one daughter.

There will be a new town on Lake Ontario at the entrance of the new Welland ship canal. It will be known as Port Weller. A syndicate, which has purchased several acres of land on either side of the new harbor, has decided on the name in honor of J. L. Weller of St. Catharines, chief engineer in charge of the canal, who has done all the planning in connection therwith.

There is being erected at the coating paper mills plant, at Georgetown, Ont., of the St. Lawrence Paper Mills Co., a building of cement blocks and steel, 50 x 60 feet, two storeys high. The location is between the shipping and the boiler rooms and the new department will be used for storing lumber and making packing cases, which work has hitherto been carried on in the basement.

The annual statement of receipts and expenditures for the Province of Quebec for the fiscal year ending June 30th, 1913, shows a surplus of $429,892, the receipts being $8,383,877 and the expenditure $7,953,984. One of the most productive sources of revenue was the lands and forests department, which is responsible for $1,760,466. The expenditure on lands and forests for the fiscal year was $327,383.

New regulations in regard to the development of small water powers in the Dominion forest reserves and parks have been approved by an order-in-council at Ottawa. They empower the Minister of the Interior to lease water powers which have a development of not over 200 horse power at the low water stage, the leases to be for ten years but renewable if the Minister thinks the power has been continuously and benefically used.

A number of pulp and paper manufacturers will take in the excursion of the Canadian Manufacturers Association, which will leave Toronto by special train on Sept. 14 and spend a week in Halifax, the Annapolis Valley, New Glasgow and on the return a visit will be paid to St. John and Fredericton. The business sessions will be held at Halifax. A visit may also be paid to the plant of the Dominion Steel Corporation in the vicinity of Sydney.

The many friends of J. A. DeCew, of Montreal, chemical engineer, who is well known to the paper and pulp trade of Canada are extending congratulations on his recent marriage. The ceremony took place on August 27 in Westmount, the bride being Miss Mabel Marshall, daughter of Prof. John Marshall, of Weyburn, Sask. The ceremony was performed by Rev. Dr. Clark of St. Andrew's Church. Mr. and Mrs. De Cew will reside in Montreal.

Charles F. Mansell, of Toronto, sales manager of the Toronto Paper Manufacturing Co., met with a painful accident while in Montreal a few days ago. He was visiting the warehouse of the J. C. Wilson Co. when, in making his way through a passage, he tripped over a platform. In seeking to prevent himself from falling, Mr. Mansell landed heavily on his left side with the result that his arm was fractured and his shoulder dislocated. He was laid up for a few days but is now able to be at his office.

James L. Chambers, of Chambers, Limited, Toronto, the Canadian representatives of Bertrams, Limited, Sciennes, Edinburgh; J. Collis and Sons, of London; Thomas Josef Heimbach, Limited, Duren, Rheinland, Germany, and Andreas Kufferath, of Mariaweiler, Germany, has returned from an extended business trip abroad. Mr. Chambers spent some time in Edinburgh and London, and also at Duren, Germany, in connection with paper makers felts and paper machine wires. Immediately on his return he left for New York City, and other eastern points.

Hon. W. H. Hearst, Minister of Lands, Forests and Mines, accompanied by Hon. Frank Cochrane, Minister of Railways and Canals are on a three weeks' tour of Northern Ontario. The trip will extend through to Winnipeg returning via Lake Superior to Sault Ste. Marie and Sudbury. While away Mr. Hearst will inspect the work that is being done in road construction and development along the line of the National Transcontinental railway in the vicinity of Lakes Abitibi and Hearst and will also look into the development of Kenora and Rainy River districts and call at Fort Frances.

The Foley-Rieger Pulp and Paper Co., of Thorold, Ontario, have recently installed a Boivng refiner to save all the waste screenings in their ground wood mill. By it all waste is conducted to the floor above and by gravity descends to two, forty inch diameter basalt stones and is ground up so finely that the material goes back into the tank along with the stock from the grinders, eliminating any waste. All the screenings are thus converted into good pulp. The loss in production before this machine was installed is estimated at ten per cent. and the refiner is giving every satisfaction.

The members of the Graphic Arts Board of Trade to the number of forty left Toronto on August 26 for Thorold and paid a visit of inspection to the new book mill of the Montrose Division of the St. Lawrence Paper Mills. The new 140 inch machine as well as the other up-to-date equipment of the plant, which is now running very smoothly was an object of much interest to the vistors, a number of whom saw for the first time how book, writing and bond papers are made. The party were taken in hand by President I. H. Weldon, T. A. Weldon, manager of the plant and superintendent, C. F. Redmond.

A disastrous fire took place in Midland, Ontario, on August 18th, when the lumber in the mill yard of Chew Bros. was reduced to ashes. It is estimated that the loss will reach $250,000. The flames spread rapidly and it was feared at one time that the mill would fall a prey, but help was summoned from Penetanguishene and Barrie and the blaze got under control. Only two piles of lumber remained standing out of at least ten million feet. Several thousand dollars worth of slabs, laths and edgings were also destroyed. The loss is covered by insurance, and the lumber belonged to a number of firms. Four years ago the same yard was destroyed with about the same loss. Cutting will be resumed at the mill at once.

John M. Imrie, of Toronto, Secretary of the Canadian Press Association, who attended the annual meeting of the Maritime Press Association at St. John, N.B., reports the union of that Association with the Canadian Press Association, is in the nature of a merger rather than an affiliation. The Maritime Press Association will cease to exist as a distinct body and its eight-seven members will become direct members of the Canadian Press Association and will constitute the Maritime provinces division of that body. The local organization work that has hitherto been done, will be continued. It will be remembered that some time ago the Western Canada Press Association became merged with the Canadian Press Association as the Manitoba-Saskatchewan Division. The annual meeting of the Alberta and Eastern British Columbia Press Association will be held at Edmonton on September 11 and 12 and later on the Western British Columbia Division will be organized. It is expected that both of these Associations will become merged with the Canadian Press Association and the chain of Territorial Divisions stretching from Coast to Coast will then be completed.

Fred. L. Ratcliff, President of the Ratcliff Paper Co., Toronto, returned last week from a business and pleasure trip to the Old Country. He went over with the Canadian bowlers and was lead in Captain Thomas Rennie's rink, which won the gold medals donated by John Ross Robertson, of the Toronto Telegram, for the Canadian quartette scoring the highest number of points in all the games played against their Old Country opponents. After the bowling festivities were over, Mr. Ratcliff visited Germany, Belgium and Sweden on business and inspeced a number of the mills. He reports business conditions abroad favorable and says the foreign plants all seem to be busy and well pleased with the outlook for fall.

MR. H. T. MELDRUM ACCEPTS SECRETARYSHIP OF THE C.P.P.A.

The appointment of Mr. H. T. Meldrum as Secretary of the Canadian Pulp & Paper Association is now assured and he will take over the duties in connection with the position at once. Mr. Meldrum's appointment to this position will be exceedingly popular and his broad knowledge of affairs practically guarantee the success of the Association.

Mr. Meldrum has had a good deal of experience in secretarial work, having been secretary of the Montreal Branch of the Canadian Manufacturers' Association since February, 1911, and also assistant secretary of the Eastern Division of this same Association. His duties with the C.P.P.A. will be carried on in conjunction with the above. After graduating in Arts from McGill University in 1907 Mr. Meldrum engaged with the Montreal Star as "street" reporter and also spent two sessions as parliamentary reporter for the same paper in the Quebec Legislature. These positions have kept him in very close touch with the industrial development of the country, and he is intimately acquainted with the majority of the prominent leaders in the various industries. He has taken a keen interest in the development of the pulp and paper industry and his knowledge of the same is considerably more than that of the ordinary well-informed layman.

MR. H. T. MELDRUM

CANADIAN MARKETS.

There are no noticeable changes to record in the pulp and paper lines. The news print situation continues easier, especially on foreign deliveries. Most of the book and writing mills are chasing hard for business and orders are not as large or nearly as numerous as last year at this time. Practically all the mills are running but they are not rushed. The demand for ground wood pulp is only fair and inquiries, which were expected to come, have not been up to the mark. The sulphite situation is also a little easier. Locally there is much cutting of prices in manila and fibre papers. The increasing of the discounts on paper bags continues and kraft has not improved any in price. In the rag and paper stock line there is not much moving although there seems a tendency to an advance in mixed papers and roofing stock. The market for tissue and toilet paper is very good. On foreign papers there is considerable cutting. The trade hope that the present rather dull conditions in many lines will improve with the advent of fall business but just when a decisive change will eventuate no one can predict. The jobbers are about holding its own in some lines in volume of turn-over, particularly in express sizes of wrappings.

Quotations, f.o.b., Toronto, are:

Paper.

News (rolls) $41 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $4 to $4.35.
Book paper (ton lots) No. 3, 4c. to 4½.
Book paper (carload) No. 2, 4½c.
Book paper (ton lots) No. 2, 4½c. to 5¼c.
Book papers (carload) No. 1, 5c. to 6c.
Book papers (ton lots) No. 1, 5¼c. to 6½c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3 7-10c. to 4¾c.

Pulp.

Ground wood (at mill), $15 to $16.
Ground wood, $22 to $24.00, delivered in United States.
Sulphite (unbleached), $45 to $46, delivered in Canada.
Sulphite (unbleached), $44 to $48, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $60 to $63, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft whit eshavings, $1.65 to $1.70.
No. 1 Mixed shavings, 60c.
White blanks, 97½c.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 80c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.10 to $1.15.
No. 1 print manilas, 65c.
Folded news, 45c.
Over issues, 50c.
No. 1 clean mixed paper, 37½c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.35.
No. 1 white shirt cuttings, $5.
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.65 to $1.75.
Black linings, $1.65 to $1.75.
News light flannelettes, $4.80.
Ordinary satinets, 75c.
Flock, 90c.
Tailor rags, 60c.

Quotations f.o.b. Montreal are:

Paper.

News, $41 to $43, felivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Bookp apers, carloads lot, No. 3, 4⅛c. to 4½c.
Book papers, brlken lots, No. 3, 4¼c. to 4¾c.
Carload lots, No. 2, 4¾c.
Manila B., 3¼c. to 3½c.
Broken lots, No. 2, 5c. to 5½c.
Carload lots, No. 1, 5¼c. to 6¼c.
Broken lots, No. 1, 6¼c. to 6¾c.

Pulp.

Sulphite Easy Bleaching, f.o.b. Montreal, $44 to $45 per ton.
News quality, f.o.b. Montreal, $42 to $43 per ton.
Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4.00 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $16.00 f.o.b. Montreal.
Gorund Wood, No. 2, $22 to $24, deliverde United Stztes.

Wrappings.

Fibre, 4c. to 4¼c.
No. 2 manila, 3¾c. to 4c.
No. 1 manilla, 3½c. to 4½c.
Kraft, 4c. to 4¾c.

Paper Stock.

No. 1 hard shavings, $1.90 to $1.95.
No. 1 soft white shavings, $1.60 to $1.75.
No. 2 soft white shavings, $1.15.
Moixed ahavings, 50c. to 55c.
White blanks, 85c. to 90c.
Ledger, $1.15 to $1.35.
No. 1 book stock, 90c.
No. 2 book stock, 45c. to 55c.
Manila envelope cuttings, $1‘05 to $1.10.
White envelope cuttings, $1.75.
No. 1 print manilas, 55c. to 60c.

Folded news, 55c. to 60c.

Crushed news, 45c. to 50c.

Good mixed paper, 40c. to 43c.

Old white cotton, $2.50 to $2.75.

Mixed cottons, $1.60 to $1.75.

Light cotton,s $1,75.

No. 1 white short cuttings, $5.50 to $5.75.

Light print cuttings, $4.00 to $4.50.

Fancy shirt cuttings, $2.10 to $2.50.

Blur eoverall cuttings, $3.45 to 3.55.

Brown overall cuttings, $2.52 to $2.50.

Black overall cuttings, $1.55 to $1.70.

Linings, $1.50 to $1.75.

New unbleached cotton, $4.60 to $5.00.

Bleached and unbleached cotton, $4.50 to $5.00.

Bleached and unbleached shoe clips, $4.00 to $4.50.

New light flannelettes, $3.75 to $4.25.

Flock satinets roofing stock, 95c. to $1.00.

NEW YORK MARKETS.

(Special to Pulp and Paper Magazine.)

New York, N.Y., August 26, 1913.

Locally importers of all grades of chemical pulps say that trading at present is inclined to be very slack, as far as new business is concerned. The prime movement at present is against outstanding contracts, and though arrivals of late have been of a seasonable volume, no accumulations to speak of are reported in any quarter. The chief feature in the market during the past fortnight was the granting of free duty on chemical pulps imported from Sweden, so that now pulps from this country, as well as from Norway, Germany and Austria-Hungary are brought into this country on the same conditions as pulps from Canada under the Reciprocity Act of July 26, 1911. A new feature has arisen, however, during the past week or ten days in connection with Swedish importations. Shipments from Sweden generally go via Hamburg, and the United States Governments has assessed duty on same, claiming that the terms of the Canadian Reciprocity Act call for shipments direct into this country. This technicality will in all probability cause more litigation, as the importers intend to fight it. Importations coming in from Sweden are accordingly now received under protest. Importers announced during the interval that theywould make the same concessions on Swedish pulp, as they have been on pulps from Norway, Germany and Austria. This reduction, which is equivalent to the old duty, will undoubtedly tend to weaken the domestic prices, though no changes have as as yet been officially announced.

Conditions in the ground wood market are virtually the same as reported two weeks ago. Supplies at the consuming points are very limited, and many inquiries are reported daily for additional lots. Makers of ground wood pulp for sale have a fairly good quantity on hand, but are very firm in their attitude. They are holding their product at premium prices, and judging from all reports, they are obtaining them. Spot shipments are exceptionally strong, and contract business over the next two or three months is said to be very satisfactory to the producers. Though water conditions in the middle west have been very good this summer, such is not the case in the east, and ground wood mills in particular have suffered greatly. Unless heavy and protracted rains come very soon it is more than likely that there will be a very severe shortage of pulp on the market.

Old waste paper stocks are once again beginning to show sign of some activity. With the exception of book stocks, most grades are moving in better volume than they have in the past two or three months. Collections, however, are not over abundant, and in consequence accumulations are not heavy. Many of the descriptions have just passed through a very quiet and uninteresting summer, and prices have been lower than they have for the past two or three years. Packers though express optimistic views over the fall business, and they are all of the opinion that values will shortly take an upward turn and will be well maintained.

Pulp.

Ground wood, No. 1, $18 to $22, per short ton, f.o.b. mill.

Ground wood, No. 2, $16 to $20, per short ton, f.o.b.mill.

Unbleached sulphite, domestic, 2.10c. to 2.15c., delivered.

Unbleached sulphite from Germany and Sweden and Austria, 1.88 1-3 to 2.13 1-3c. ex dock, New York.

Unbleached sulphite, all other countries, 2.05c. to 2.30c., ex dock, New York.

Bleached sulphite, domestic, 2.90c. to 3.00c., delivered.

Bleached sulphite from Germany, Norway and Sweden and Austria, 2.75c. to 3.00c. ex. dock, New York.

Bleached sulphite, all other countries, 3.00c. to 3.25c., ex dock, New York.

Easy bleaching sulphite from Germany, Norway, Sweden and Austria, 2.13 1-3c. to 2.28 1-3c. ex dock, New York.

Easy bleaching sulphite, all other countries, 2.30c. to 2.45c., ex dock, N.Y.

Unbleached sulphate, from Germany, Norway, Sweden and Austria, 1.75c. to 1.95c., ex dock, New York.

Unbleached sulphate, all other countries, 1.90c. to 2.10c., ex dock, New York.

Bleached sulphate, from Germany, Norway, Sweden and Austria, 2.35c. to 2.75c., ex dock, New York.

Bleached sulphate, all other countries, 2.60c. to 3c., ex dock, New York.

Kraft pulp, from Germany, Norway, Sweden and Austria, 1.85c. to 2.05c., ex dock, New York.

Kraft pulp, all other countries, 2c. to 2.20c., ex dock, New York.

Soda pulp, domestic, 2.15c. to 2.25c., delivered.

Paper.

The whole market is now practically on the threshold of the fall season, and the trade is simply awaiting the passing of the last few weeks of summer market conditions. The reports from the leading paper centres, as received here by the principal manufacturers, show that general business is moving along at a quiet, but steady gait, indicating that the underlying conditions are acquiring more strength as the middle of September—the turning point, approaches. To a large extent buying has continued along conservative lines, not only with the consumer, but with the jobber as well, consequently there has been no extensive movement on any grade of paper for some little while. A striking feature is that almost everyone concerned in the industry are of the opinion that buying will resume in good volume as soon as the pending tariff agitation at Washington is settled. While the jobbing trade in particular is confident of the future, there is little disposition to speculate on the prospects by ordering goods ahead of time. Consuming interest take much the same view of things. As a matter of fact, distributors and consumers are satisfied to operate on a basis consistent with their actual needs until of necessity through larger business they are forced to buy more heavily. Though the mills are not suffering for business, there is a lack of larger orders for any length of time in advance. In nearly every case they are quite busy, but their books show a large amount of small orders for very prompt shipments. Values throughout the schedule

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are being well maintained, and in few cases are showing an upward tendency. Writing, books and manilas are firming, and the outlook is for better values in the very near future. With a few minor changes, the previous price schedule remains unaltered, as follows:

News, rolls, transient business, $2.00 to $2.10 f.o.b. mill.

News, rolls, contract renewals, $1.95 to $2.05, f.o.b. mill.

News, sheet, $2.10 to $2.15, f.o.b. mill.

Book papers, car lots, C. & S.C., $4 to $4.20, f.o.b. mill

Book papers, car lots, M.F.S., $3.75 to $3.90, f.o.b. mill

Writing paper superfine, 11c. to $13c., delivered east of the Mississippi River.

Writing paper, extra fine, 10½c., delivered east of the Mississippi River.

Writing paper, No. 1, fine, 9c., delivered east of the Mississippi River.

Writing paper, No. 2, fine, 8c., delivered east of the Mississippi River.

Writing paper, engine sized, 4½c. to 8c., delivered east of the Mississippi River.

Bond paper, 6c. to 24c., delivered east of Mississippi River.

Linen paper, 7c. to 18c., delivered east of Mississippi River.

Ledger paper, 8c. to 30c., delivered east of Mississippi River.

Manila jute, 4½c. to 5¼c., delivered.

Manila, wood, $2.49 to $3.00, delivered.

Kraft, No. 1, $3.65 to $4.00, f.o.b., mill.

Kraft, No. 2, $3.25 to $3.50, f.o.b., mill.

Screenings, $1.75 to $2.12½, delivered.

Boxboards, news, $30 to $32 per ton, delivered.

Boxboards, chip, $28 to $30 per ton, delivered.

Boxboards, straw, $29 to $30 per ton, delivered.

Wood pulp board, $42.50 to $45 per ton, delivered.

Tissue, white, cylinder, 42½c., to 45c., delivered.

Tissue, fourdrinier, 45c. to 50c., delivered.

Tissue, jute manila, 50c. to 55c., delivered.

THE FIRST PAPER MILL IN CANADA

It is very interesting to note that very near the site of the first paper mill erected in the Quebec Province, there is now being erected a new mill at a place now called Donnacona. The first mill in this Province and in Canada was built at Les Fonds des Jacques Cartier on the Jacque Cartier River. In August 1800 it was a Vat Mill for hand-made paper, built by an American named Jackson, whose descendants still live in Quebec. Its beginnings were frought with great difficulty and the operation and ownership passed through many hands. The mill was soon rented by Jackson to a fellow-countryman named Curtis, who returned to the United States previous to 1834. About this time, three young Scotchmen, August McDonald, Alex and John Logan, joined fortunes and rented the mill from the Alsopp family, who were the proprietors. The mill had previously been fitted with a cylinder machine and had a steam boiler which was made of two cast-iron potash kettles bolted together. In the year 1845, a man named Peter Smith was operating these mills. He afterwards built and operated the Wood End Mill at Portneuf now owned by Messrs. Rolland, Ford & Son. Later this mill was rented to a man called Harper, who was followed by the late Mr. Peter Ford and his father, until the mill was finally destroyed by fire in 1857 and never rebuilt. The operation of this plant was closely associated with those which later developed in Portneuf. In 1836, McDonald and Logan, not being able to secure leases on the Jacques Cartier Mill. went to Portneuf and purchased a mill site on the Portneuf River and began the construction of a mill which was in operation about 1840. In 1845, they bought a Fourdrinier machine from Brown of Edinburgh, Scotland. This was the first of its kind in the country. An interesting item in connection with these mills is that hydraulic pressure was first used here in the grinding of mechanical pulp. This mill is still in operation and is owned by J. Ford & Co. The five Portneuf Mills are owned and operated by the descendants of Joseph Ford, Sr.

APPOINTED SELLING AGENTS.

F. Reddaway & Company, manufacturers of "Camel" brand belting, linen fine hose, stitched cotton belting, etc., 595 St. Paul St., Montreal, have appointed the A. R. Williams Machinery Co., Limited, as selling agents. Complete stocks of belting will be carried at Toronto, Winnipeg and Vancouver.

MILL FOR SALE.

The undersigned, on behalf of the receiver appointed by the trustees of the debenture holders of the Westenr Paper Mills, Limited, hereby gives notice that tenders will be received up to and including the fifteenth day of October, 1913, for the purchase of the said company's premises, plant and undertaking, consisting of a fully equipped paper mil in running order, operating an eighty-four inch four-cylinder machine, situated on the line of the Great Northern Railway near Vancouver, B.C. The mill has been in operation fourteen months making board, sheathing and wrapping papers. The highest of any tender not necessarily accepted. For further particulars and conditions of sale, appl to James F. Garvin, care British American Trust Company, Limited, 198 Hastings Street West, Vancouver, B.C.

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TARIFF TROUBLES

American paper journals have been agitating themselves into a terrible frenzy during the last few weeks over further tariff developments. The fact that the present tariff has gone through the Senate with no radical changes has made the fight very bitter. The old bone of Canada imposing export prohibition on pulpwood is the chief difficulty around which agitation wages.

American manufacturers insist on a retaliatory duty on all pulp and paper from Canada while any part of Canada imposes such restriction. The unreasonableness of this contention has frequently been pointed out in the columns of this magazine, but since the argument or rather excuses of the opposing view have been oft repeated we must point out again how important it is that Canada, and as many Americans as are willing to take a sane view of the situation, see exactly how it stands from an unbiased point of view.

At the present time Canada is giving to the United States a million cords of pulpwood every year. It is more than is manufactured within our own bounderies. We are using our competitors, and if we are to believe some tariff talkers, our enemies, better than we are using ourselves. While we are supplying this raw material we are also buying from the United States eight million dollars worth of paper every year; in return for all of this we are allowed to sell in their markets, in competition with their mills, supplied with our own raw material, less paper than they sell us. Surely any one can see how unreasonable a contention it is to ask a country to keep its competitors' mills going, open their own markets to these competitors and then be prohibited from fair competition in their markets.

This country is naturally adapted for the manufacture of certain grades of pulp, especially newsprint and should carefully look to the development of our resources along the lines in which we can best compete. Any prohibition on the squandering of our raw material, which will help the markets, for our products should be most welcome. The little which has been done in the prohibition of wood export, is but a triffle compared with what we should have to preserve to our industries the resources which nature has bestowed. We can see that the concessions we can make are of no value, giving us no adequate return by similar concessions from those who are benefited by us.

Some discriminations have appeared in the sulphite clause of the new tariff and also under Clause 2 of the reciprocity act, some mills being able to ship their sulphite free while others can not. This is no argument against restrictions which have been made, but circumstances which can not be avoided. It seems to us, however, that it does not make any difference whether it is pulp or paper which is being sold but high-grade sulphite should enjoy equal privileges with newsprint so far as our own prohibition and restrictions are concerned.

If the present rulings of the courts of the United States hold there is not reason under the new tariff why sulphite pulps for export can not all be made from land which is exempt or may become exempt when conditions warrant it. That the new tariff will superseed entirely Clause

2 is the belief of many but we cannot see why such should be the case. This materially affects the export of wrapping paper which comes between the 2 1-2 cent and 4 cent class. Under Clause 2 this should be admitted to American markets in the future as it has been in the past regardless of the new tariff. No doubt this will provide a case for some extended court action but every indication points to the fact that Clause 2 shall hold in such case.

THE NEWSPAPER OF THE FUTURE

Some very interesting observations on the newspaper of the future were made recently by Mr. Robert Donald, president of the Institute of Journalism at York, England. The progress and development of the newspaper is of vital interest to paper makers and the observations and prophecies which Mr. Donald gave to the public at that time are most interesting and instructive coming from such an authentic source.

Looking 20 years ahead, he believes that newspapers will be fewer, but the tendency towards combinations will increase and, happily for the maker of "news," colossal circulations will continue to grow. A paper which has not at least a half-million readers, he opines, will not be considered seriously as an organ of the people. In a word, his conclusion is that there will be fewer newspapers, but the total circulation will be greater. Besides these "national newspapers" there will be localised newspapers, following the method of the National Press in presenting news, says Mr. Donald, and revival, he hopes, of the purely local country newspapers, in improved form and style. Furthermore, the inability of the more national newspapers to give space to sectional interests will lead to specialised daily newspapers taking the place of the specialised weeklies which now exist. The morning and evening newspapers will be merged, and editions will come out almost every hour, day and night. Again, judging from the trend of events, Mr. Donald predicts that the next generation will see the activities of municipal and other public authorities very much extended, with the result that newspapers will not be able to report their proceedings, and municipalities will have to issue official gazettes, daily or weekly as the case may be.

Suggestions from various sides that the newspaper will be superseded by other mechanical means of spreading news may have weight with some but it seems to us that the particular adaptability of this means of spreading news will insure its permanency. The phenomenal expansion of the large metropolitan newspaper of to-day has been backed entirely by the advertising which it has been able to command.

Whether or not it might develop that some other form of advertising would appeal to department stores and other big advertisers in the daily press is a conjecture difficult to affirm or deny. Certainly newspapers are dependent for their expenses and life on this form of support.

Mr. Donald concurs with our view that the enormous circulation of the present will continue to grow and that it will only be a few years until the papers with such enormous circulations will have the only claim to the title of "the organ of the people." This wide expansion of the national newspaper will also leave a field for the small daily in the smaller towns.

Journalism itself will probably not change materially but promises a development even further along the lines of the present day. While this is true there is every indication that the consumption of newsprint will grow at an enormous rate and it is upon the price of white paper that this success depends. The daily is making a big hit and doing a lot toward boosting circulation. It is probable that this will go on more and more and everything points to the fact that the world's consumption of print paper will increase even more than the per capita allowance usually made.

THE LABOR DIFFICULTIES

The past weeks have recorded a few earmarks of serious labor unrest, none however, directly connected with the Canadian pulp and paper industry. Within Canada the most serious difficulties have been in British Columbia among the mine workers. The strikers there have gone to extremes never before used in this country and perpetrated the greatest destruction of life and property yet recorded among us. The I. W. W. has certainly a great deal to answer for to the prosperity and development of British Columbia. Labor in that Province is one of the greatest difficulties manufacturers experience. The difficulties which a number of pulp and paper mills there have run into were started by the laborers themselves. It is so serious that any one thinking of placing a mill on the West Coast should figure most carefully this phase of his undertaking There seems to be no limit to the extremes which men infuriated by the harangues of some labor demagogue will go. All regard for the common decenies of life have been forgotten in the wild panic which western British Columbia experienced recently. Outside of small bickerings elsewhere the labor situation in this country is extremely hopeful and the paper industry is one of the best in this regard.

Another strike which will be of intense interest to the paper manufacturers throughout the world is that of the china clay workers in the west of England. Practically all of the pits are closed for no better reason than recognition of the union. Most of the men themselves have no kick on wages for they readily agree that the present wage scale compares most favorably with that paid for similar work elsewhere. There is no doubt that current contracts for china clay will be forfeited in the near future as the supply will soon become very short.

This brings home to us the serious position the paper manufacturers are in, depending on one source of supply for their filler, or in limiting themselves to one kind of filler.

SILVICULTURE AND THE PULP MILL

A very interesting address delivered by Doctor B. F. Fernow, of Toronto, and published in "American Forestry," entitled "A Plan Adequate to Meet Our Needs for Timber Wood," calls our attention to the discussion of the question of reforesting our cut-over lands and the general discussion of the advisability of the practice of silviculture to guarantee the supply of raw material.

This is a question which has found support among practical men, and even among foresters, only recently in this country. Even yet very few manufacturers are prepared to consider seriously the pros and cons of silviculture. Doctor Fernow comes to some very interesting conclusions and points out many valuable facts in his discussion of this subject.

Practically everybody now appreciates the fact that forestry is essentially the science of reproducing forest crops which have been utilized and of providing an adequate and perpetual supply of wood. Natural reproduction does not meet these needs, so there is no doubt that means to assist and augment nature must be sought and employed.

Many authorities claim that we are cutting annually three or four times the growth, and with the increasing population this discrepency will widen and the difficulty become more acute. From statistics which may be taken as reliable it seems, however, that the annual cut throughout the world is about double the annual growth. Against this proposed practice of reforestation most people urge the substitute of conservative logging which means to quote from the lecture, in the first place, a more careful utilization of the existing natural crop; secondly, it involves leaving a part of the crop for additional increment by restricting the cut to a certain diameter; thirdly, if applied to the fullest extent, it means leaving here and there seed trees, that MIGHT help in securing a new crop if nature is kind, but it does nothing to INSURE such a new crop or to assist its development, and since the financial condition of the operation prevents the removal of weed trees, the latter have at least as good a chance, often a better one, to reproduce as against the better species which are the object of the logging, and, which, by this very fact, are constantly reduced in the composition of the forest. If, then, fire is kept out, the trees left of the original growth will lay on additional increment, and in 20 or 30 years will have grown to a desirable log size permitting the logger to return for another harvest; but there is no assurance that a new, YOUNG crop will spring up and take the place of the original, nor, if such crop if perchance it should establish itself will be of the right kind and will in the shade of the left over trees develop advantageously.

Conservative logging, then, is rather concerned with a more conservative UTILIZATION of the present crop, and has only a subordinate element of concern in the future crop—of silviculture—in it. Of course this is a big step in the right direction but it does not seem to fully meet the needs as they will appear years hence.

As to the methods of silviculture decided differences of opinion are found among authorities in all countries; it also seems that ideas rapidly change and revert frequently to the ideas formerly held and once discarded. In general, however, there are two plans:

1. Natural reproduction wherein the seeds from existing trees are expected by natural methods to reproduce themselves of the cut-over area;

2. Artificial reforestation where seeds are sown by hand or machine or grown in the nursery and planted on the cut-over area which has been cleared of the old crop and in some cases the ground prepared.

In considering the value of each of these methods two points of view must be taken into account: the long-time investment and the biological conditions. In figuring the return it is difficult to know the proper interest rate, and what prices will rule in products for which these forests are adpated at the time they will mature and other considerations very difficult to definitely figure, but it seems that the cost of production may be below that of return.

In the German State Forests it costs about $4.75 per thousand feet exclusive of interest and with interest charges about $7 per thousand feet.

"On over 10,000,000 acres of State Forests, the production of stout wood (over 3 inches) was, in 1910, 73 cubic feet per acre, of which 65 per cent. or 48 cubic feet was log material which may be translated into around 400 feet b.m. The total expense per acre was $2.45 which if the whole is charged against log material makes the cost of production per M board feet cut in the woods around $6, from which deducting wood choppers' wages of $1.25 leaves the cost of stumpage $4.75, while the average price per M feet in the woods cut—i.e., of logs was $16.65."

"With us, due to difference in labor prices, this cost of production may be doubled and rounded off upwards to $10 per M. When, therefore, stumpage values have reached the $10 mark with us we may feel assured that the business begins to pay, hardly before."

Doctor Fernow after stating that it is his personal opinion that the needs of the future will not be adeqautely provided for until we take recourse to planting operations on a large scale further states:

"It is only long-lived corporations, municipalities, and governments that can afford and can be expected to carry on a consistent conservative policy and spend money and tie up capital which is not returning interest for many decades. Such large persistent corporations as railroads needing a continuous supply of ties, or those engaged in paper manufacture whose business, run with expensive plants, is based on continuity of forest supplies may embark successfully on growing their raw material. The small farmer who does not count his time may also in a very small manner contribute toward eking out supplies. But in the end, I am afraid that we will have to abandon the democratic dream of individual endeavor and learn the lesson that communal interests must be attended to by the community. In the end, only the State and municipality can be expected to provide for a distant future.

"There are some foolish notions abroad as regards the distance of that future, the length of time it takes to grow a log tree. We may not go at length into this subject, only stating that with most species in most localities nothing can be expected in less than 60 to 100 years. An adequate plan, then, for supplying the future needs of timber at least must rely upon State activity and upon planting on a large scale. An example may illustrate the method of procedure."

"Let us assume that a town has borrowed 5,000 acres of waste land, which it could secure for say $15,000, borrowing the money from the State at 3%; the 5,000 acres to be planted in a 25 year campaign; that is at the rate of 200 acres per year, at a cost of $8 per acre; the annual outlay of $1,600 also to be furnished by the State from year to year, when the interest charges will be $450 in the original investment and a series of interest payments of $48 increasing annually by $48. The loans will then, in the 25th year, have accumulated to $55,000 and the interest accumulations to $26,870, or $1,075 average per year, and the highest last annual charge, $1,650, amounts not difficult to raise. After the planting is finished the annual interest charge remains stable at $1,650. Now each year 200 acres may be thinned and every 5 years the thinning repeated. A net result of $8 per acre for the first thinning (at that time wood prices will be higher) $3 for the second, and $3.50 for every subsequent thinning, would be a reasonable assumption. In other words, for the next five years after loans and planting have been completed the interest charges are met to the extent of $400, in the second quinquennium, to the extent of $700, and in the third quinquennium a surplus begins to appear. Now, arrangements for refunding the loan may be made at once, or else merely interest may be continued to be paid out of returns for thinnings, the town receivingsmall incomes until the sixtieth year, when the first 200 acres may come to harvest yielding not less than $120,000, likely much more at that time, wiping out the loan and leaving a property worth several million dollars producing annual revenue."

"And all the State has done is to loan its credit, not one cent is given in charity, and the town has made no expenditure except for the care of the property."

That these calculations are not chimerical may be learned from experiences in France.

"Here the State reforested during the last century 200,000 acres of sand dunes at a cost of $2,000,000. Of this 75,000 acres were sold reimbursing the total cost of the 200,000 acres and $140,000 to boot, and leaving a property now valued at $10,000,000."

"In the Landes, the State, municipalities and private owners planted nearly 1,750,000 acres at a cost of $10,000,000, the value of the recovered properties being now placed at $100,000,000 based on their annual production."

"Some 200,000 acres of poor land, unhealthy, useless waste in La Sologne was planted up by a private association at a cost of $5 per acre. These lands, which 50 years ago could not be sold at $4 an acre. now bring over $3 annual revenue, being valued at $18,000,000."

"Another 200,000 acre tract in Champagne on arid limestone wastes, largely planted by private incentive, costing somewhat less than $25 to plant, is valued at $10,000,000, furnishing a net revenue of $2 per acre."

These are results actually achieved and not fancies or forecasts.

We are now accustomed to have the general Government stand behind large national undertakings, such as the reclamation service, the waterways commission, the good roads movement, etc. If it is desirable for the general Government to spend funds in preparing ground for agricultural use by irrigation works or by draining swamps, why should it not extend its beneficient action to bring waste lands into forest use by inaugurating a systematic financial assistance in loaning its credit to the provinces for the recuperation of mismanaged forest acres.

The task and the expenditure would by no means be enormous as the following suppositious calculations may show:

"We have seen that less than $20 per acre would be required for planting cost and interest account, and hence an annual loan of $20,000,000 for sixty years—two dreadnoughts a year—would be a most ample provision."

"Summarizing, then, the elements of my plans are:

"1. Each State to ascertain its quota of planting area, classified for systematic procedure in its recovery.

"2. A cooperative financial arrangement, by which municipalities may secure the credit of the State and States the credit of the Federal Government for the purposes of acquiring and recovering their quota.

"3. State planting to be done on a large scale."

This question has already come up with a number of our paper mills in Canada, and at least one has decided to institute a campaign for planting. For this they have selected fir on account of its rapid growing qualities being a suitable paper-making wood, almost as good as spruce. Planting costs will run below $6 an acre and the whole investment has been figure out as a profitable step.

Looking forward to a few years there is no doubt that this is the solution of our problem. Outside of paper companies very few industrial firms can take a hand in this development but must rely upon Provincial and Dominion assistance.

We are glad to record that the Dominion department of forestry, under the efficient direction of Mr. Campbell, has already done something in this direction and they are accomplishing more and more each year as their appropriations permit.

The point of the whole thing is that we want all interested in the manufacture of pulp and paper, and in the continuance of our industry on a permanent basis, to look into the question and acquaint themselves with methods of silviculture.

WHEN YOUR SHIP COMES IN.

The Canadian General Electric Co. is sending around a small pamphlet, under the above heading, illustrating their G. E. Type W. Flame Arc Lamp. This lamp is especially adaptable for use on wharves and docks at night when proper illumination is so necessary. It burns from 100 to 120 hours without attention and the trimming operation is extremely simple. The mechanism is enclosed in a weather and insect proof copper casing which is black oxidized. This casing is also made telescopic in order to permit of ready access to the mechanism.

CANADA'S PAPER AND PULP TRADE WITH THE UNITED KINGDOM

1912 GOVERNMENT RETURNS ISSUED IN LONDON

(Special to Pulp and Paper Magazine)

London, August 30, 1913

The British Trade Board has just issued a statement showing the trade in paper and pulp between Canada and the United Kingdom in 1912. It is a most interesting document and shows the gradual declining interest the Dominion has taken in the British paper market so far as newsprint and writings are concerned. This is much to be regretted because Canada's place is taken by Scandinavia and German papermakers. The following are the details:—The total imports of paper and boards in 1912 was 294,786 cwts. valued at £137,584, as against £141,137 in 1911, £182,739 in 1910, £221,226 in 1909, £229,932 in 1908 and £155,172 in 1907. Paper for printing and writing was imported from Canada to the following extent:—1912, 77,015 cwts. valued at £41,594; 1911, 99,545 cwts., £55,811; 1910, 186,881 cwts., £92,691; 1909, 326,141 cwts., £161,790; 1908, 343,434 cwts., £179,934; 1907, 215,440 cwts., valued at £104,178. Strawboards, mill and wood pulp boards were imported from Canada as follows:— 1912, 217,771 cwts., valued at £95,990; 1911, 193,862 cwts., £85,275; 1910, 199,276 cwts., £90,008; 1909, 132,387 cwts., £59,294; 1908, 122,667 cwts., £52,998; 1907, 107,282 cwts., valued at £48,-605.

From the foregoing figures it may be observed that while newsprint and writings have fallen off considerably during the past six years, there is an appreciable increase in Canada's exports of boards to the British markets. For the past six years there is a gradual rise, but the increase is nothing compared with the trade of Holland, Belgium and Germany with England.

The exports of British papermakers to Canada reached close on £300,000 for paper alone—printing and writings. The figures for the five preceding years are: 1911, £233,063; 1910, £218,738; 1909, £169,164; 1908, £130,265; 1907, £152,126. The British trade with the Dominion is, therefore, constantly increasing since 1908, during which year there was a slight falling off compared with 1907.

But though the figures for paper exports from Canada into the United Kingdom are remarkable in many respects, the vicissitudes through which the wood pulp trade of the Dominion with England has passed is still more remarkable. Here are the exports from Canada, as recorded here in London:— 1912, 43,398 tons valued at £102,102; 1911, 33,563 tons, £75,189; 1910, 69,739 tons, £161,779; 1909, 108,336 tons, £284,172; 1908, 98,791 tons, £286,455; 1907, 64,548 tons, valued at £168,793. Wood pulp, of course, includes mechanical and chemical, as the government in the annual return does not distinguish one from the other. The Canadian Paper and Pulp Association are, however, now in a position to supply details to any manufacturer since that body was organized.

Another remarkable feature of the government statement is the progress Newfoundland is making with the British markets. The exports from Newfoundland are given as follows:—Paper: 1912, 790,633 cwts., valued at £394,764; 1911, 523,116 cwts., £264,562; 1910, 340,365 cwts., valued at £101,362; 1911, 30,454 tons, £75,259; 1910, 12,191 tons, valued at £31,463. No figures are recorded beyond 1910.

PAPER FOR ENVELOPES.

In connection with the special article on the above subject, which appeared in last issue, we neglected to give the author credit. This paper was written by Mr. T. Linsey Crossly, the well-known Engineering Chemist of Montreal. We are sure his treatise will be valuable to those interested in this line.

A WEEK IN WISCONSIN

By A. G. McINTYRE

The Badger State of the Union is one of especial interest to pulp and paper men the world over and especially to these interests in Canada, due to the rapid changes in the industry in that State through the growing Canadian competition in many of Wisconsin's special lines.

The large amount of Canadian groundwood, which formerly went to the news mills there, has materially fallen off, while the print mills have gone on to higher grades which require less groundwood and more chemical pulp. Like the State of New York, Wisconsin draws a large supply of raw material from Canada and continues to thrive by Canadian shortsightedness.

The entire industry of the State has been undergoing a rapid transformation during the last few years. On the raw material side of the game, spruce has rapidly retired from the dominating position once held. Hemlock has risen to a place of great prominence, especially in sulphite. Other woods too are coming rapidly into use, as a result of the work of the United States Forest Products Laboratories, which are in that State at Madison.

Staff of Forest Products Laboratory, Madison, Wis.

On the manufactured side of the game news tonnage drops lower each year to be replaced by an increased production of specialties. Formerly the products of the Wisconsin mills found their outlet in the Mississippi Valley and the West, now the specialties are crowding into the East as well

Against High Freight Rates.

Great bitterness exists among the paper manufacturers there, on tariff matters. Advocates of the legislation have brought forward the argument that an industry which has developed past its natural resources become inadequate for the needs of all. Most of the mills, however, are not now operated by the interests or even by the families of the original promoters. Present owners have either purchased or inherited their mill properties and are particularly insistent in their demand on the Government for protection of their interests, even to the encouragement of inefficiency. The State is particularly interesting, however, as a past and present paper center, and has good omen of continuance in the business for the future though possibly in a somewhat altered phase.

The Forest Products Laboratories.

The State of Wisconsin will ever stand to the the paper makers of the world as the home of the greatest scientific and systematic investigations into the uses of our forest products, particularly pulp and paper.

The Forest Products Laboratories of the United States Forest Service were built at Madison in 1910, and have since continued and enlarged their good work until now the scope of their investigations is the broadest of anything yet attempted in the utilization of forest products. Madison is the capital of the State and the seat of the University of Wisconsin in cooperation with which much of the work of the Forest Products Laboratories has been conducted.

The two great achievments which have marked the most advanced steps in the field of pulp and paper has been the results obtained from the investigations of the sulphate process for the southern pines (longleaf, shortleaf and loblolly) and in mechanical pulp.

In connection with the former, carried out under the direction of McGarvey Cline then director of the laboratories, the results were surprisingly good. Mr. Cline has now left the Government service and is interested in a very large company which will develop a lumber and paper proposition at Jacksonville, Fla., carrying out the results obtained.

It was found that by the sulphate process a yield of 1800 pounds per cord of wood was obtained, instead of 1200 to 1400, as with the species now in use. This wood is obtained in the South at $3 to $4 per cord and makes the strongest wrapping paper. There is no doubt that these results will mean that the sulphate industry of the United Stated will rapidly move South.

After visiting Madison the writer spent a couple of days at Wausau where the Forest Products Laboratories have established their groundwood laboratory. The Government has spent about $100,000 to work out the problems of groundwood manufacture on a commercial scale and has studied all of the fundamental variables. The work at Wausau will be completed by January 1 and the laboratory dismantled. The results obtained have been most valuable and have given the only reliable and exhaustive data on mechanical pulp available. All of the results which have yet been made public have been published in the PULP AND PAPER MAGAZINE.

Marathon Paper Mills.

While at Wausau with Mr. H. F. Weiss, the director of the Forest Products Laboratories, and Mr. McNaughton, in charge of the Wausau work, the writer was the guest of Mr. D. C. Everest, secretary and general manager of the Marathon Paper Mills Company at Rothschild, Wis., a short distance from Wausau. Through his courtesy we give our readers a cut of the new mill which was started in November, 1910. They have experienced untold difficulties from floods since opening up. In October, 1911, the mill was flooded completly, submerging the entire power house and generating station. A recent flood in July, 1912, surpassed the damage of the year before, and took out part of the dam. All possibilities of future mishaps have been provided for, and the mills are now booming on a wave of prosperity which is the envy of their confreres in these grades.

Marathon Paper Mills Co., Ltd., Rothchild, Wis.

The Marathon Mills make specialties entirely on three machines, a 114 inch 4-cylinder, 60-dryer board machine, 287 feet long, a 134 inch Fourdrinier, and a 134 inch Yankee M. G. machine. Their specialities include fancy wrappings, special boards, and sulphate boards, etc. One unique feature is the water marking of the paper for each customer. This has proved a great success and the product has won a nation-wide reputation.

The well beaten path to the mill

The sulphite mill has four digestors 56 ft. x 16 ft., cooling by indirect steam and making Mitscherlich fiber of highest quality. A new system of bleaching, designed by their own engineers, is proving an immense success. The pulp is bleached in a conical tub and is circulated by means of fan pumps. The entire mill has been a marked success and is a hint to some of our Canadian manufacturers, that opportunity lies open in this new line of specials.

We can not refain from quoting Mr. Everest's compliment to our journal. He said, "The PULP AND PAPER MAGAZINE is the best journal published on pulp and pape anywhere." The same good words were heard in all the mills, all of whom are subscribers.

Nekoosa - Edwards.

The following afternoon we shook hands with a Canadian Mr. W. G. McNaughton, mill manager of the Nekoosa-Edwards Paper Company, at Port Edwards, Wis. He is a graduate of McGill University and started the paper game with the Canada Paper Company at Windsor Mills, coming to Wisconsin five years ago, as chemical engineer. He has rapidly risen in the esteem of the trade of that State, until every one knows of "Mac" as a cracking good paper man, and a fine all round good fellow. He now holds a position on the advisory board of the United States Forest Products Laboratory and helps the investigators by his experience and practical knowledge. There are a lot of mills in Canada which need Mac's skill, and we hope some day they may need him badly enough to lure him back to the country where they make real spruce sulphite.

This company has been a most interesting development. Initially a sawmill at Port Edwards started by John Edwards, a paper, groundwood and sulphite mill, were the the natural developments. Five years ago these interests united into the Nekoosa-Edwards Paper Company two miles down the Wisconsin River. This was one of the first sulphite mills in the United States and has many peculiar features which are rapidly being modernized.

They also control the Centralia Pulp and Water Power Company, one mile up the river, which is famous as the only paper mill in the United States, managed by a woman, Miss C. Nason, the manager, is a well known figure in the Western paper world.

The mill was burned a year ago and is now being rebuilt as a power plant only, for the John Edwards mill at Port Edwards. They are installing four 600 h. p. water wheels coupled to four horizontal generators. This is historic as the site of the first paper mill on the Winconsin river now boasting so many.

Nekoosa-Edwards Paper Co.'s Mill, Port Edward, Wis.

These mills are specializing in high-grade news sheets, fancy and strong wrappings and manilas. Two or three hits made by this company are considerably talked of in the paper circles. McNaughton has made some big, advanced steps, first and chiefest being the production of sulphite sheets, testing pound for pound and having a Kraft rattle. This has taken him three years to develop, during which time he had to drop two superintendents, but the sheet is now coming over the machines. Any one of a doubtful disposition can call at our office and see the pulp and the paper all made from hemlock. With this pulp they have specialized on a strong and fancy wrapping, their best seller.

Coincident with the above development he opened a campaign on the sulphur cost reduction. The average sulphur used for the last seven months, was 233 pounds per ton of pulp. One system used in few other plants, is the system of blow-off relief for the digesters. The gas and liquor are relieved through different sets of water cooled pipes, thence to acid tanks. The gas going to the tank from which the acid is pumped to the digester, is used to "blow up" the acid. The liquor is piped to the same tank as the acid system. Both these mills and the Marathon Paper Company use the Stebbins milk of lime acid system.

Horizontal Splitter, Nekoosa-Edwards Paper Co.

Another big hit of "Mac's" is reduction of oil cost; he now runs the two mills on an oil cost of $2500 which, formerly took $8000 a year before he conjured his brain on the problem. He says always use a ring or chain oil feed whenever possible, where oil can be recovered and used again. Buying in tank cars and limiting to three grades has been one strong factor in squeezing down costs.

At Port Edwards the company owns a large part of the town, while at Nekoosa they sold at a nominal price to the employees. Water, light, and schools are provided at nominal rates and partly free.

In sulphite the mill uses entirely barked hemlock most of which is rotten at the heart. The cleaning is expensive and the chips hard to get uniform. Considering the handicaps the sulphite proposition is extremely well managed. They manufacture about 110 tons at both plants selling 30 tons. Just now a bleaching system is being installed for 50 tons, half of which will go in the market.

Two unique machines have been developed by them, one a horizontal splitter which has handled as high as 150 cords in 10 hours of large hemlock wood. It has three knives in the shape of a star which splits the wood into thirds while a chain conveyor carries it away. It is operated by one man and has proved a big success.

D. C. EVEREST,

Secretary and General Manager Marathon Paper Mills Co. Limited, Rothchild, Wis.

Their genius has been further exercised in developing a roll wrapping machine, which wraps and labels the rolls of wrapping paper cut for store use. There are a few refinements to be developed on this machine but at present they are doing the work of ten men with six. This will be further cut when the additions are completed.

The same genius has developed an automatic wet machine. A large knife somewhat similar to the one used on wet machines of the Sherbrooke Machinery Company, works automatically by a cam and lever, cutting the roll at a specified thickness and turning it out on the table by a third wooden frame roller. A further novel wet machine is an interchangeable decker and wet machine, to take advantage of the varying conditions in the production of the pulp mill. The shaft of the cylinder is simply extended and a drive attached to the front. A moveable doctor is added giving a decker complete. Many mills using slush pulp would find this an advantage when a machine shuts down, or the other parts of the plant go wrong.

Passing through the plant we find some new and interesting pieces of machinery. In the machine room they are running a Voith Fourdrinier which ran at the World's Fair in Chicago in 1893,—a very sporty machine it is. Brass trimmings, brass head plates on all of the dryers and altogether a machine built to make a hit.

In the beater room are two improved centrifugal screens, now manufactured in Canada by the Sherbrooke Machinery Company, who recently took an order from the Abitibi Pulp and Paper Company for their entire installation. At one end there is a Marx double beater supplied by Process Engineers, Ltd., of Montreal, which Mr. McNaughton says gives the best circulation of any beater for heavy stock. Elaborate tests which he made give 27½ feet on 6% stock. This beater uses a steel roll on one side and a basalt lava stone roll on the other. This same firm, of which Mr. J. A. DeCew is president, has installed his sizing process effecting a saving of over 40 per cent. in sizing costs. The process depends on using the size in the form of an emulsion, which carries a high percentage of free rosin—the sizing material. A large number of mills if the State of Wisconsin have installed the process and are loud in its praises.

HOWARD F. WEISS.
Director of the Forest Products Laboratory, Madison, Wis.

Saying goodbye to Mr. L. M. Alexander, the genial general manager of the company, and Mr. McNaughton whom we urged to return to Canada, "the coming paper country of the world," we started north to Brunett Falls.

Brunett Falls Manufacturing Company.

Arriving at the Falls, now called Cornell after Ezra Cornell the founder of the university which bears his name and who made his "pile" in Wisconsin timber, we were greeted by Mr. J. H. Thickens, formerly in charge of the Ground Wood Laboratory of the U. S. Forest Products Laboratory at Wausau, Wis.. Mr. Thickens made such a name for himself, through his work at that laboratory, investigating groundwood that he was eagerly sought for by the Brunett Falls Manufacturing Company who manufacture board from steamed groundwood. This plant was built under the direction of Mr. George F. Steele, at that time president of the company, with Mr. Simmons as engineer and general manager. It transpires that the latter made misrepresentations to the financial interests who undertook the development, claiming to be able to manufacture test board from steamed jack pine, when in reality the sample submitted contained a considerable percentage of Kraft pulp which ran the test up. The result is that the company has now practically given up the use of jack pine in making high-grade board and uses spruce, tamarack, and fir. Further mismanagement ran the cost of construction up until at the present time there has been sunk in the proposition over 3½ million dollars, in a plant which produces 40 tons of board per day. These circumstances have made it most difficult for the new interests, who now have control, to make any kind of a showing and it is doubtful if the firm can weather the financial storms for any extended period.

The hydraulic development consists of 1800 horsepower under 42-foot head direct-connected to grinders. The entire construction is reinforced concrete and, with the exception of many clumsy mistakes in designs, the plant is a very attractive proposition. The best feature is their wood-handling equipment which is quite unique; concrete troughs run under the wood pile which is higher than the conveyor leading to the wood room; running water in these troughs carries the wood in 2-foot lengths to the mill. Circulation is affected by pumping water into the head of the trough. All the wood used is steamed for varying lengths of time, depending upon kind of wood and quality of board desired, ranging from five to ten hours. Within, the mill is arranged as awkwardly as possible which is running the manufacturing costs very high. In the machine room a

J. H. THICKENS,
General Manager, Brunett Falls Mfg. Co.

magnificent Beloit machine is turning out 40 tons of board per day. It is expected that this will be increased to 60 tons when the mill gets to running in better shape. This machine has 7 cylinders, 72 dryers. and is 124 inches wide. It is well built and is showing up in good shape.

W. G. McNAUGHTON, Nekoosa-Edwards Paper Co.

This proposition has proved conclusively that it is not feasible to manufacture high-grade board from such expensive raw material; there is too much waste available which provides a good raw material for most grades so that the market is limited and the price does not warrant such a plant. Mr. Thickens, however, as general superintendent, is aiding in every way possible to put the plant on its feet and in spite of many discouragements through the mistakes of others the outlook is much more hopeful than it was.

The next day our trip was concluded by a trip to Minneapolis to visit the Waldorf Boxboard Company of St. Paul. Here they are erecting the largest board machine in the world—136 inches wide, 8 cylinders, and 75 dryers. They use entirely waste papers as a raw material mixed with a small percentage of chemical pulp. A novel feature worthy of mention which I noticed here was the use of creosoted wood blocks in the shipping platforms throughout the mill. It seems that wood blocks are finding great favor throughout the West for these platforms and from all that we could see they are by far the best scheme for wear and lasting qualities.

On the whole the atmosphere of the Wisconsin paper industry is that of a struggling industry, seeking a new basis of operation. They have extremely good technical and practical talent in their mills and give every indication of continuing the prosperity for which their State has been famous in paper circles.

BRUNETT FALLS MILL CLOSES DOWN.

(Special to Pulp and Paper Magazine).

Madison, Wisconsin, September 9, 1913.—The plant of the Brunett Falls Manufacturing Company at Brunett Falls, Wis., has closed down for thirty days, pending financial arrangements between the old and new interests.

This mill manufacturers board from steamed groundwood and has only been in operation a few months. The plant was built at a cost of over 3½ million dollars and has a production of 40 tons of board per day.

The original intention was to use jack pine but this was found to be unsuccessful. A great many blunders in the construction and opening of the plant were made and the entire management has changed hands. The new interests, it is understood, have come to serious differences with the former interests with the result that the plant has been shut down pending an arrangement.

SOME EXPERIMENTS ON THE CONVERSION OF LONGLEAF PINE TO PAPER-PULP BY THE SODA AND SULPHATE PROCESSES

By **SYDNEY D. WELLS**, Madison, Wis.

Introduction.

During 1912 the Forest Service in co-operation with the University of Wisconsin undertook a series of experiments on longleaf pine, PINUS PALUSTRIS, with the following objects:

1. To study what influence the variable cooking conditions have in the sulphate process of pulp-making.

2. To determine the suitability of longleaf pine for paper pulp.

3. To compare the sulphate process with the soda process.

This work has only been partailly completed but since there is urgent demand for information on the adaptability of longleaf pine, or southern pine as it is more commonly called, for the manufacture of paper pulp it has been thought advisable to give what indications our work has so far made manifest.

Longleaf pine was chosen on account of the large quantities of this wood that are being wasted in the lumber operations of the Southern States and also because many logs are at present being sawn into lumber at little or no profit on account of their small diameter which would be of admirable size for pulpwood. Furthermore, the large amount of resinous matter in this wood made it desirable as an extreme test of a cooking process and the long, thick-walled fibres of the wood assured a strong pulp if it could be produced without too drastic treatment.

EXPERIMENTAL PROCEDURE.

The cooking operations in this work were conducted in two forms of digesters. The first form consisted of a small rotary autoclave of about 2 gallon capacity which was heated with Bunsen burners. The other form was a vertical digester, of 60 gallon capacity heated by direct steam. The greater portion of the work was accomplished in the former and in all 145 cooks were made. The data obtained in these cooks were used in determining the conditions to use in the larger digester in which 19 cooks were made to obtain conditions more nearly comparable with those obtained in commercial practice.

The wood used was procured in Louisiana and Mississippi, and was fairly average in rate of growth, size, and content of resinous matter. It was freed from bark and reduced to chips five-eights inch long with the grain. These chips were allowed to become air-dry and were thoroughly mixed and sifted to remove any dirt and small pieces.

The cooking liquors were made up by dissolving the required amounts of commercial caustic soda, sodium sulphide, Glauber's salt, and soda ash to produce solutions of the desired concentration of each of these chemicals.

In studying the influence of the variable factors entering into the cooking operation the small autoclave was used. The effect that any one variable condition exerted was determined by a series of cooks made varying the condition under observation, and maintaining the other conditions as nearly identical as possible in each cook. The effect of the results were ascertained by determining the yield of pulp and carefully treating the pulp in a hollander beating engine to develop a stuff capable of producing as strong a sheet as possible when made into paper. The quality and color of the pulps were judged by inspection, feel, amount of beater treatment necessary, and the strength and wearing qualities of the paper produced.

The Effects of Varying the Amounts of Chemicals.

The effect of varying the caustic soda or sodium sulphide, was a decrease in yield and a lighter colored pulp with an increase in either one or both of the chemicals. Caustic soda was found to be about twice as drastic in its action as sodium sulphide and with the same yield the pulp produced by the former was lighter than that produced by the latter. The yields, however, do not decrease directly in proportion to the amounts of chemicals used, and between 30 and 50 pounds of caustic per 100 pounds of chips the decrease in yield is much less for equal steps than below or above these amounts. The disagreeable odor caused by the production of mercaptans increased with the increase of the sodium sulphide, and was much more noticeable where the larger proportions of this chemical were used.

The sodium carbonate and sulphate present in the cooking liquor produced no very apparent effect except where the former was present in relative large amounts when a retardation in the action of the other chemicals present was noticeable. Enough cooks were not made, however, to definitely establish this indication.

The Effect of Varying the Pressure, Duration of Cooking and Concentrations.

The effect of increasing any one of these variables was to increase the severity of the cooking action attainable with the same quantity of cooking chemicals. With any combination of the above conditions there is a definite amount of chemical necessary to produce a pulp of the best quality and it is possible to use a wide range of conditions to produce approximately the same result.

Semicommercial Cooks.

In the cooks in the large digester the object sought was to obtain the best quality of pulp. It was found that easily-bleaching pulps could not be obtained without using a very drastic digestion with a high percentage of alkali, and that the pulps produced were very low in yield and extremely soft and weak. It was, therefore, decided to devote attention toward producing the strongest pulps possible, and treat these pulps in the beater to make the highest grade of "Kraft." Although the strength of the paper was constantly considered the question of yield was also very important and the best cooks were determined with these two objects in view.

Cooking Conditions for Four Typical Semi-Commercial Cooks

	Caustic soda charged per 100 lbs., bone dry chips.	Sodium sulphide charged per 100 dry chips.	Initial concentration of caustic soda in cooking liquor.	Initial volume of cooking liquor per 100 lbs. bone dry chips.	Total duration of cook.	Duration at maximum steam pressure.	Maximum steam pressure.	Yield of crude pulp.	Beater treatment Duration of light brush.	Period of lowering roll.	Duration of stiff brush.	Pop test per .001 of inch of thickness.
	Lbs.	Lbs.	Grams per liter.	Gallons.	Hours.	Hours.	Lbs. per sq. inch.	per cent	Hours.	Hours.	Hours.	Lbs.
Long yield...	15.0	7.5	26.5	68	3.0	2.8	90	61.2	1.5	.5	2.0	7.0
Medium yeild	15.0	7.5	26.5	.68	3.5	3.0	100	49.0	4.0	5	2.5	9.0
Small yield...	20.0	10.0	44.6	.54	3.0	2.5	103	45.3	1.5	5	1.5	10.0
Soda cook....	30.0	0.0	90.0	.40	6.0	5.5	100	39.8	6.0	0	.0	9.0

An average sheet of .005 of an inch tested 45 pounds and weighed 45 pounds per ream of 500 sheets 24″ by 36″. Not only was the paper exceptionally strong but it was very resistant to wear and folding. The latter fact is apparent by some tests made on it in a Schopper Folding Tester in which it withstood 1200 double folds before breaking.

The pulps produced under these conditions were very chippy when blown but the chips were very soft, had no hard hearts and were readily broken up in the beater. An ordinary hollander with steel fly bars was used and the pulp was beaten two hours at light brush, four hours at stiff brush, and one-half hour was spent in lowering the roll from one stage to the other.

Stronger paper than these were produced but the yields fell off considerably. Yields up to 61 per cent. were obtained but the strength fell off more than could be compensated by using proportonately heavier paper. It is very probable that with basalt lava beater rolls using the same or an even less consunptiom of power and in much less time.

Soda Cooks.

To compare the soda process with the sulphate process in cooking longleaf pine several soda cooks were made. It was found that soda pulps could be made that would produce paper capable of resisting bursting pressure to the same degree as the best paper made from sulphate pulp, but the wearing qualities were not nearly as good and the yields were from 5 to 10 per cent. less. The unbeaten pulps were soft and fluffy for even slightly undercooked pulps, and although they could be hardened in the beater the treatment was longer and much greater care had to be exercised to avoid cutting the fibres. Furthermore, although a fairly good grade of kraft can be made of sulphate pulp with a yield of 60 per cent., soda pulp produced with that yield would be so undercooked and brittle that only very poor wrapping could be produced. Moreover, it was found necessary to cook soda pulp at least 6 hours to secure good results while in the sulphate process 3½ hours were found sufficient. Thus in the latter process the same digester capacity would produce two-thirds more pulp per day.

General Conclusions.

Although the experiments performed in this investigation are only a portion of what are contemplated they seem to make apparent the following facts:

1. That longleaf pine is well adapted for the manufacture of natural-color kraft pulps and papers.

2. That the sulphate process when applied to this wood affords pulps of better quality and higher yields than the soda process.

3. That kraft paper can be made from longleaf pine equal or superior in quality to the imported or domestic kraft papers now procurable.

4. The high specific gravity of the wood insure a greater yield per cord to this wood than is possessed by any other commercially important pulpwood.—A paper read before the American Chemical Society, Rochester, N.Y., September 10, 1913.

NEW PROCESS OF PULP PRODUCTION

A French patent recently issued covers a process for the production of pulp from waste wood, branches, roots, straw, bark, pine cones, dried plants, turf and like substances. This process allows of treating the fibres without the need of boiling under pressure.

It consists fundamentally in treating the raw material during a certain time in a hot solution of chloride of lime, of diluted muriatic acid and of soda or potash. When this solution has exercised a sufficient action upon the raw material, the latter is removed and boiled for a certain length of time in lime water. The mass resulting from this treatment is ready to undergo the further processes necessary for bringing it to the condition of cardboard or paper.

In carrying out this process, 22 pounds of caustic soda at 90 per cent. are dissolved in 26.4 gallons of boiling water. In this mixture there are added 4.4 pounds of chloride of lime which has been brought by the addition of water to a pasty condition. The compound is then let cool, when there are slowly added 6.6 pounds of muriatic acid at 20 Baume.

The material to be treated is then plunged unto this compound, being preferably wrapped up, and the liquid is heated. After the material has been long enough submitted to the action of the solution it is taken out and plunged into a receptacle containing boiling water to which there has been added 5 per cent of quick lime. The material is boiled for two hours in this solution, being then washed in clean water to completely eliminate the chemicals present.

THE FIRST PAPER MILLS IN UPPER CANADA

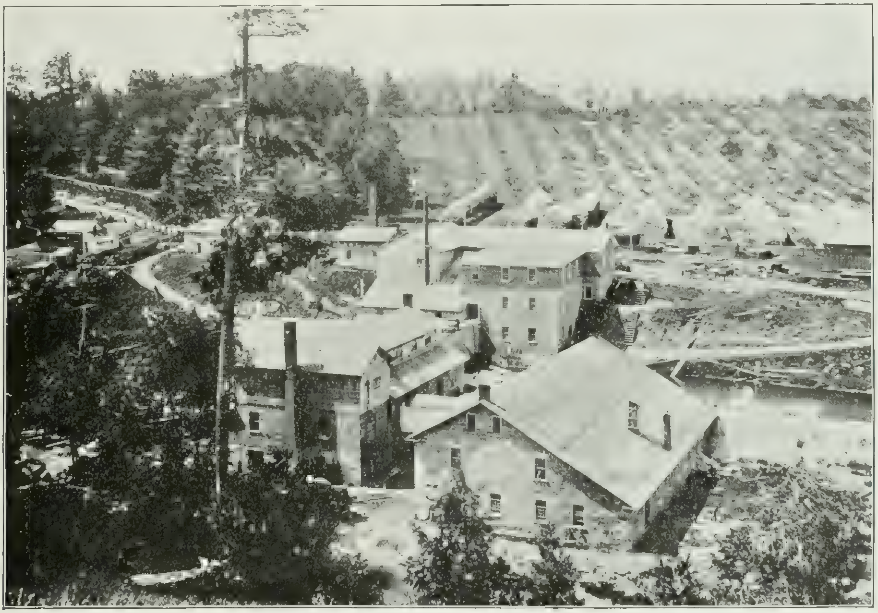
By W. A. CRAICK

Three miles beyond Dundas on the Brock Road, a highway which extends from Hamilton to Galt, the traveller passes a point which may well be regarded as the cradle of Western Ontario industry. Here, on the banks of Lindsay Creek, was the site of that noted village of Crook's Hollow, where the Hon. James Crooks, in the early years of the nineteenth century, established at least a dozen manufactories. Little remains today of what was once a thriving village. The old wooden mill houses the plant of the Stutt Paper Company, but beyond that only a few ruins mark the spot where some of the earliest industries in Upper Canada were given their start.

An old stone foundation, overgrown with verdure and crumbling away under the hand of time, is pointed out to the passer-by as being all that is left of the first paper mill in what is now known as Ontario. It was one of the later industries to be started by Mr. Crooks, he having already in operation at the Hollow a distillery, foundry, grist mill, oil mill, tannery, edge tool factory, woolen mill, sawmill, potash factory and cooper shop. The paper mill was erected about 1825 or 1826. It was a building about 30 by 40 feet in dimensions. The paper was of course made by hand and to Mr. Crooks belongs the distinction of having earned the hundred pounds bounty offered by the government for having produced the first sheet of it turned out in Upper Canada.

Apparently there had been a race for this prize and Mr. Crooks did not enjoy his victory without a struggle. On the banks of the Don River, a few miles above Toronto, there existed another industrial settlement, of which very little remains today. This colony was started by an Englishman of the name of marshall Terry, who erected several mills on the River about the end of the eighteenth century. He was drowned in 1808 and his property passed into the possession of John Eastwood and Colin Skinner.

Eastwood and Skinner developed the industries already in existence and when they heard of the governments' offer of a prize for the first sheet of paper produced in the country, determined to enter the competition. They were beaten out by only a few days. Indeed so close did they come behind Crooks that the government decided to give them some recognition for their effort and remitted the duty on the paper-making machinery which they had to import from the United States.



BARBER BROS.' PAPER MILL, GEORGETOWN, ONT.

The subsequent history of this pioneer paper mill is somewhat clouded in uncertainty. It is known that when Eastwood died his mills went to the Helliwells, who were his brothers-in-law. Thomas Helliwell, sr., had built a brewery in 1820 and this was the principal unit in the Don group of industries until its destruction by fire in 1847. Close by the site of the old brewery the Taylor's erected a new paper mill shortly afterwards. They had already erected a mill in 1840 and a third mill was also started about the same period.

The Taylor family were for many years identified with the paper manufacturing business in the Don Valley. The founder of the family, John Taylor, sr., settled at the forks of the Don in 1833. Dying soon after, the industries which he started were undertaken by his sons, George, Thomas and John Taylor, jr., who started their first papermill in 1840. John Taylor, jr., died when quite young and the business, which included saw, flour and paper mills, was continued under the style of Thomas Taylor and Brother. In 1880, Thomas retired and George handed over the management to his sons, John F., George A. and William T., the junior firm adding brick works to the combination.

The three Taylor mills, which manufactured manilla, news and felt papers respectively, were known as the upper, middle and lower mills. They flourished for many years and at one time the Toronto newspapers were supplied from this source. Then the owners got into difficulties and first one mill and then another was closed down and the third was burnt. Robert Davies, who had married a daughter of George Taylor, then stepped in and restored the middle mill, which he has since developed into a large and successful industry. The upper mill still stands but is now only used as a shelter for cattle. The lower mill also stands with its paper machine still in place but it is not used.

Coming now to the third mill in Upper Canada, it is interesting to know that there was a connection between it and the first mill. There had arrived in Crooks' Hollow shortly after the paper mill was built, a family consisting of a father, four sons and a daughter, which was destined to play an important part in the history of the Canadian paper industry. These were the Barbers. The father was a stonemason by trade; the sons were hardy Irish boys. They had emigrated to Canada from Ireland in 1822 and after spending short intervals at Prescott and Niagara, had come to Crook's Hollow to obtain employment in the mills.

William and Robert, the eldest and the youngest of the sons, worked in the woolen mill; James, the second son, became interested in the paper mill, while Joseph, the third son, took up the millwright's trade. They remained at Crook's Hollow for thirteen years, when the brothers decided that it would be just as well for them to set up in business for themselves. In casting about for a suitable place to start operations, they hit upon Georgetown, then a tiny village containing about three houses. There was good water power available however, and that decided them. In the year of the rebellion they moved all their families and belongings in ox-carts to their new location.

A custom and one set carding mill was erected on the west branch of the Credit, near what is now the centre of the town of Georgetown and for six years the brothers ran this primitive industry before the next development took place. This was the removal of Robert Barber and his brother-in-law, Benjamin Franklin, to Streetville, where the pair put up a second woolen mill. Both mills were owned jointly by the family and both prospered. Ultimately in 1852 a new and much larger factory was built in Streetsville, into which the machinery of both plants was put and the Georgetown mill was closed down.

Then followed the beginning of the paper industry in Georgetown. A Scotchman by the name of David Forbes had gone West as far as Galt and had there attempted to start a mill but had become discouraged owing to the long distance it was necessary to haul his product to market. At the time the Grand Trunk Railway was building westward and construction was approaching Georgetown. Here on the Credit River, right beside the route of the railway, seemed a better place to locate and Forbes negotiated with the Barber brothers for a site and power. The Barbers eventually put up a building for him and rented him both the power and premises. Forbes, however, did not stick at his venture and almost before he had got started, the brothers found themselves saddled with a paper mill.

The first Barber mill, built in 1853, is still standing and is now known as No. 1 Machine Room. It is a solid stone structure, 40 x 70 feet and is the building in the right hand foreground in the picture. It contained originally a 36″ cylinder paper machine on which the first paper made in the mill was manufactured. Mr. John R. Barber of Georgetown vividly recalls the shipping of the initial product of the mill to Toronto. It consisted of three carloads of wrapping, made of straw, and was consigned to Buntin, Reid & Co. Mr. Barber was a small boy at the time and was employed in the finishing room, wrapping up the sheets. There was no regular train service to Toronto and the shipment was loaded on flat cars used in the construction work. The engine, hauling the cars, being a woodburner, threw out sparks so plentifully that it was necessary to send a bucket brigade with the paper to prevent it from being burnt up.

Soon after the mill was started the brothers began to manufacture newsprint, making an all rag product, which they sold extensively to weekly newspaper publishers and to the Toronto Daily Leader. They also made use of straw, especially pea straw, for wrapping papers and until the time that wood began to be employed instead, were large consumers of straw. In this connection an exciting incident occurred in 1861. Some new boilers were installed to boil the straw and early one morning soon after they were put in, they all blew up, killing one man and injuring others.

Meanwhile, a second building had been erected in 1858, into which a 48 cylinder machine was put. It is probably of this machine that the story is told of James Barber, the brother who was in charge of the papermaking end of the business, that he came to the mill one morning and was told that the new machine was running 100 feet a minute. This was so astonishing that it was almost incredible and he would not believe the performance until he had personally timed it with his watch.

In 1869 the partnership which had existed without the slightest friction among the brothers and their brother-in-law was dissolved. It is said of this partnership that for 39 years they carried on all their activities together without a settlement among the partners, owning almost everything in common. William, and Robert retained the Streetsville property; James the paper mill, and Joseph and Benjamin Franklin retired.

Following this, the paper manufacturing business continued to expand. By 1877, the plant comprised a 76, a 62, and a 54 inch Fourdrinier paper machine, employed sixty hands and consumed 2 1-2 tons of rags per day and 2500 cords of wood annually. Its subsequent history with its more recent transfer from the Barber family to the control of the St. Lawrence Paper Mills Company, is matter of general knowledge.

One interesting feature in the history of the mill may be related. In 1888 John R. Barber felt the need for more power. At the mill the drop was only about 15 feet, while a mile down the river it was twenty-two feet. The problem was, how to utilize this distant waterfall. Compressed air was suggested, also a system of pulleys but both were rejected as unfeasible. Finally an electric transmission line was discussed. This was a novel idea and it was doubtful if anything of the kind had ever been attempted before. Mr. Barber went to the Brush Company in Cleveland and stated his wants. They told him that the largest motor they made was one of 30 H. P. Mr. Barber said this was too small, he wanted one twice as strong. They finally agreed to try and make one for him, and they succeeded. He went home and built the dam. The Brush people put in a 100 h.p generator, carried a line direct to the mill and installed a 60 h.p. direct current motor. The combination worked and gave satisfaction. It was one of the first hydro-electric plants in the world.

A new paper box factory has been started in Calgary by C. M. Spencer of Syracuse, N.Y., under the name of the American Paper Box Company. All styles of paper boxes will be turned out.

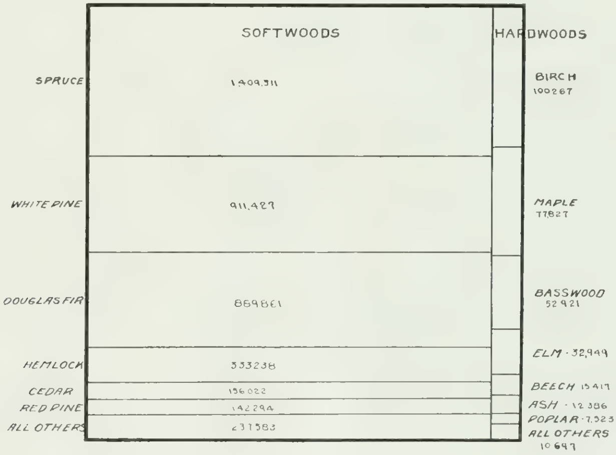
SPRUCE--THE BACKBONE OF CANADA'S WOOD-PULP AND LUMBER INDUSTRY

STARTLING STATISTICS IN BULLETINS 38, 39 & 40, OF THE FORESTRY BRANCH, OTTAWA

By G. E. BOTHWELL

(Special to Pulp and Paper Magazine).

The important position spruce occupies in the lumber production of Canada is strikingly illustrated in the accompanying cut re-produced from one appearing in a bulletin newly issued by the Forestry Branch, Ottawa, on the lumber, lath, shingle and square timber production of Canada, for 1912. The data for this bulletin was contributed by 2,558 mills, most of which reported a considerable curtailment in their 1912 production, which resulted in a ten per cent. decrease in the total lumber production of 1912 from that of 1911, equivalent to a decline in value of almost six and one-half million dollars. All the provinces, except Saskatchewan, reported a falling off in production, notably Manitoba, where the cut last year was over twenty-five per cent. less than that of 1911.



Spruce constituted almost one third of the 4,389,923,000 ft. board measure of lumber cut in 1912, hence, this decreased cut was probably largely influenced by the 11.9% decrease in the production of spruce lumber during this period. It is, however, very unlikely that the total amount of spruce timber cut in 1912 showed any material decrease from that of 1911, for spruce made up over 78 per cent. of the 1,846,910 cords of pulp wood cut in Canada in 1912, this being an increase of 23% over the amount of spruce cut for this purpose in 1911.

The supremacy of spruce in the lumber trade of Canada is easily seen when the cut in each Province is noted separately.

Prince Edward Island cut 57.9 per cent. Spruce.
Nova Scotia, 64.1 per cent.
New Brunswick, 78.5 per cent.
Quebec, 60 per cent.
Ontario, 8 per cent.
Manitoba, 92.8 per cent.
Saskatchewan, 99.2 per cent.
Alberta, 90.5 per cent.
British Columbia, 7.5 per cent.

In all Provinces of the Dominion, except British Columbia spruce probably comprises a larger per cent. of the forest growth than any other tree species, for the three chief varieties range from the Atlantic to the Pacific and from the International boundary line to the Arctic Ocean. There is an abundance of spruce in Ontario and British Columbia, and the paucity of the cut in these two Provinces is not due to the shortness of supply, but rather to the fact that other species of more merchantable value for lumber still exist in large quantites.

Spruce is being increasingly used in the manufacture of shingles, but the British Columbia cedar (Thuja plicata) yet comprises almost one-half the total cut which fell off 14.1% in 1912, amounting to only 1,578,343,000 pieces valued at $3,175,319.

There was also a decrease of 6.99 in the number of laths manufactured in 1912, only 899,016,000 pieces being cut, representing a value of $2,064,622. Spruce headed the list of woods used in the manufacture of this product, comprising over one third of the total.

The bulletin shows a surprising increase of 89.9% in the production of square timber in 1912 over that of 1911, this being the first increase since 1877. In this product spruce played but a negligible part, the chief species being white pine and birch which respectively made up 53.5% and 28.5% of the 65,906 tons of this product cut, representing a total value of $1,825,154. 97.5% of the square timber produced in Canada was exported to the United Kingdom.

In all three bulletins which cover the entire range of timber products in the rough, which were cut in Canada in 1912, there is, in the case of spruce, a remarkable discrepency between production and price, which is of special significance. Usually, when there is an abundant supply of any product, an increased demand manifested through rising prices, will stimulate a corresponding increase in production; but this has not been the case with the production of spruce in Canada in 1912.

As seen above, the amount of spruce lumber produced in 1912 was 11.9% less than the amount produced in 1911. Yet during this period the average price of spruce lumber rose to $14.46 per 1000 ft. board measure, an increase of 6% over the price of 1911, while the average price of all the lumber cut in Canada in 1912 rose but slightly over 12%. A similar discrepency is noticeable in the case of lath and shingles cut from spruce in Canada during this period.

In the bulletin dealing with the pole and cross-tie production of Canadain 1912 the same thing is seen. Only 835,121 cross-ties were cut from eastern spruce in 1912, a decrease of over 11% from the cut of 1911, and this, in spite of the fact that the average price of spruce ties rose to 40 cents, an increase of 53% over the 1911 price, whereas the average price of all the cross-ties purchased in Canada in 1912, increased less than 13%. Ninety-one hundred spruce poles were cut in 1912, this being a slight increase over the 1911 production. But the average price of spruce poles increased out of all proportion to the number increase, being over 10% in advance of the 1911 price, while the average price of all the poles cut in Canada during this period rose only about 1½%.

It is likely that the stringency of the market in the case of these products is caused in a large measure by the immense drain on the yearly cut of spruce timber made by the pulp and paper industry, which must have spruce at any cost, and which in 1912 consumed 28.8% more pulp-wood than in 1911. Indeed the unprecedented growth of this industry has in all likelihood stimulated an over-production of spruce pulp-wood, for bulletin 38 of the Forestry Branch states that 129,471 more cords of pulp-wood were cut in 1912 than in 1911, and that this was more than the market could absorb is apparent from the increased export of pulp-wood and the decrease in price per cord of 43 cents in the home market.

But it is the phenomenal increase in the demand for spruce for all manner of uses that is chiefly responsible for the shortage of supply, the lumbermen and mill owners not having time as yet to adapt their operations to the rapidly enlarged market for this material. Spruce is cheap because it is abundant, not because its wood is of a poor grade, for from a technical viewpoint, it has many points in its favor, and it is practically certain that, as the years go by, spruce will not only maintain its place as the leading Canadian wood, but will increase that lead until it shall practically monopolize the market.

ACTION IS ENTERED BY HOME BANK AGAINST FORMER DIRECTORS OF EAST CANADA PULP AND PAPER CO.

A writ has been served by the Home Bank of Canada upon Sir Rodolphe Forget, Laurent Morin, Edward Pope, all of Montreal, and C. W. Tooke, of Syracuse, N.Y., on a note of $42,000 given by the East Canada Pulp and Paper Company to the Banque Internationale du Canada, and guaranteed by the above-named. The writ is for an action to recover the $42,000 guarantee. The legal firm of Chauvin, Baker & Walker are acting for the Home Bank.

The endorsers of the note were directors of the East Canada Pulp and Paper Company, now in course of liquidation. Edward Pope, up to a short time ago, was employed in Sir Rodolphe Forget's offices.

HENRI MENIER, CHOCOLATE MANUFACTURER, DEAD.

Well known among Canadian Pulp and Paper Manufacturers. Greatly developed Island of Anticosti, which he owned.

The death of Mr. Henri Menier, the millionaire chocolate manufacturer of Paris, which occurred a few days ago, calls fresh attention to the industries which he built up on the Island of Anticosti. The late Mr. Menier was born in 1853 and succeeded to his father's business of chocolate manufacturing while a young man in his eighteenth year and, before he was 25 years of age, had practically doubled the output of the plant. At the age of 35 his fortune reached the enormous figure of 200,000,000 francs. In 1895, he purchased the Island of Anticosti and, in this way, became associated with the industrial life of this country. The Island is 135 miles long and 40 wide, lying in the mouth of the St. Lawrence River. Menier paid only $125,000 for his island kingdom, but at that time the price was considered an exorbitant one as two other owners had found the island a white elephant on their hands and were glad to dispose of it to the chocolate manufacturer. Menier has spent millions of dollars in developing the resources of the island and to-day has a possession which is valued at many times the sum he paid for it. The soil of the island is fertile, while the pulp forests which cover the larger portion of the land are among the finest on the continent. In addition, the fisheries along the coast are extremely valuable. To-day the Island of Anticosti is regarded as the great lobster fishing centre in North America, while the pulp mills recently erected by Mr. Menier give employment to a very large number of men. This year, the pulp wood from the island is being carried in a regular fleet of freighters to mills at Thorold, Ontario. In addition, pulp wood is manufactured on the island and the product exported to Great Britain, France, the United States and other countries. In connection with the building of his pulp mills and lobster canneries, Menier has laid out model towns, equipped with schools, hospitals, gymnasiums, music halls, etc., etc. The island to-day is one of the most progressive and prosperous communities in the northern half of the continent.

EASTERN FOREST RESERVES.

(American Lumberman.)

The establishing of national forests in the East is not without its difficulties, and, curiously enough the question of State rights is raised in New Hampshire as pointedly as in the West. That State is attempting to reserve the right to grant public franchises with rights of eminent domain within the forest reserve. It is attempting to reserve the right to collect taxes on the property. It is attempting to reserve title to the lakes and ponds and the public waters within the territory, with access thereto. State legislation regarding this national forest reserve began in 1903 when a joint resolution favoring the establishment of a national forest reserve in the White Mountain region was adopted. This resolution gave the State's consent to the national Government to acquire by purchase, gift or condemnation such land as might be needed. The question now at issue is whether the attorney general acting for the Government has the right in this year 1913, to annex new conditions to the consent granted by the legislature ten years ago. The affair bears the semblance of a political "bluff" to the promoters of the national forest scheme, and it is doubted if the attorney general will urge his point so far that establishing the forest may be imperiled.

COUNTERVAILING DUTY STRICKEN OUT

(Special to Pulp and Paper Magazine).

Washington, D.C., September 6, 1913.

The countervailing duty on wood pulp proposed by the new tariff bill was stricken out by the Senate Finance Committee today and all retaliatory duties against Canadian wood pulp were removed. The committee presented an amendment to that effect.

A vote on the Bill in the Senate may be reached sometime this week. The action formally taken tonight was that of reporting the tariff from the Senate sitting in committee of the whole to the Senate sitting as a deliberate body. This means that so far as Senate action is concerned the Bill is now in practically final shape since, while it is theoretically possible to introduce official amendments in the Senate sitting as such, it is not customary to do it to any considerable extent. In other words, the majority party now in control has put the measure into shape intended by it to be adopted and sent over to the House for consideration in conference.

Clearing up odds and ends of the Bill went on with a succession of defeats for Republican amendments on wheat, cotton goods, lumber and other commodities. Progressive Republicans frequently voted with the Democrats.

In the end the Senate by viva voca vote agreed to the striking out of the wood pulp countervailing duty and paragraph 651 on the free list involving the free importation of mechanically ground wood pulp, chemical wood pulp, unbleached or bleached and rag pulp has been amended by the striking out of the entire proviso which applies to a countervailing duty on same. This proviso reads: "Provided, that if any country dependency, Province, or other subdivision of government, shall impose an export duty or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge, or licnese fee, or otherwise) upon printing paper, rag pulp, mechanically ground wood pulp, chemical wood pulp, or wood for use in the manufacture of wood pulp, the amount of such export duty, or export charge upon an equal amount of rag pulp, mechanically ground wood pulp, or chemical wood pulp, or upon the amount of wood for use in the manufacture of such chemical wood pulp, or upon an amount of printing paper ordinarily manufactured from such wood pulp, shall be imposed as a duty upon chemical wood pulp when imported directly or indirectly from such country, dependency, province, or other subdivision of government; and if any country, dependency, province or other subdivision of government shall prohibit the exportation of printing paper, rag pulp, mechanically ground wood pulp, chemcial wood pulp, or wood for the use in the manufacture of wood pulp, there shall be imposed a duty of one-tenth of one cent per pound upon chemical wood pulp when imported directly or indirectly from such country, dependency, province or other subdivision of government."

Therefore, when the new Bill is enacted all descriptions of pulp used in the manufacture of paper will be entitled to free entry of duty without restrictions. As revised, paragraph 651 now reads:

"Mechanically ground wood pulp, chemical wood pulp bleached or unbleached and rag pulp." (Free of duty.)

Senator Smoot said he would vote for the amendment but predicted that it would not be many years before the great pulp manufacturing business would be transferred to Canada. He again called attention to the fact that every prediction that was made at the time of the passage of the Canadian Reciprocity Act in relation to the increased manufacture of paper in Canada, had been verified. In this connection he stated that fifty one companies with a total capital of $152,180,000 have been organized for the purpose of manufacturing pulp and paper in Canada since the agitation concerning section 2 to the Canadian reciprocity act began about three years ago. The Senator stated that he possessed a list of nearly half as many more companies that are not yet organized, but are proposed to be in the near future. "While this activity has been going on in Canada," he said, "We have not increased our output, nor have we increased the number of manufacturers here by one per cent."

"The only result will be," he continued, "that the profits of the American paper and pulp industry will go to the Canadian manufacturers. I want to take this opportunity, therefore, to congratulate Mr. John Norris of the American News Paper Publishers' Association on this successful culmination of his long fight. He can now go back to New York and report success."

Senator Hughes, in a statement relating to the retaliations against Canada on Pulp wood, said:

"All the burdens of those retaliations must be borne by the American newspaper publishers, who in 1912 paid indirectly a penalty of more than $3,000,000 in addition to the amount of retaliatory duties paid directly. This indirect tax was due to the uniform and agreed and artificial prices which the combination of the American paper makers has continuously maintained. No print paper can be brought in the open market. American mill will not sell news print paper unless they know the destination of the paper, the purpose for which it is to be used and the name of the buyer. They starve the market by restricting production, as is shown by the monthly reports to the Bureau of Corporations. They have kept down the stock of paper on hand at the mills to an eight-day supply for all the newspapers of the country. They have dumped paper into Great Britain at lower prices than they sell to the American consumer. The policy of retaliation against Canada fosters and helps that argument."

A continued session of fourteen hours was undertaken by Democratic leaders today in a desperate effort to shorten the tariff discussion and bring the Underwood-Simmons bill from that parliamentary stage known as "Committee of the Whole," into the Senate. Majority senators attended their closing caucus long after midnight.

While admitting that the final passage of the Tariff Bill before adjournment during the night was a hopeless undertaking, majority leaders expressed great confidence that the result will be accomplished early next week. Some believe that Monday will witness this joyous event, while others think Senator LaFollette's speeches and other delays will defer the end until Tuesday or Wednesday.

WISCONSIN GROUNDWOOD PROSPECT GOOD

Madison, Wis., September 9th.

The low water throughout the summer in the State of Wisconsin points to the fact that the price of groundwood pulp will stiffen materially in the next few weeks. Deliveries have been held up pending tariff arrangements but present indications in this State go to show that the demand and price for groundwood will be good, during the fall and winter. New York State has also reported to be showing good demand for groundwood pulp, at better prices.

BRITISH TRADE NEWS

(Special to Pulp and Paper Magazine.)

London, Sept. 5., 1913.

A well secured industrial investment worth the attention of investors in Canada may be found in the four-and-a-half per cent. First Mortgage Debenture Stock of Albert E. Reed & Co., the paper manufacturers, whose debenture stock can now be purchased at 91 to give a yield of a fraction over 5 per cent. The company was formed in May 1903 to acquire the business of paper manufacturers of that name, the authorized capital being £450,000 in shares of one sovereign each (originally ten sovereigns), £300,000 being 5½ per cent., Cumulative Preference, and £150,000 Ordinary. All the ordinary and £218,000 of the preference shares have been allotted and paid up; £100,000 of the 4½ per cent First Mortgage debenture stock was issued in 1903 and the stock is secured by a first mortgage of all the freehold and leasehold properties taken over in that year. Interest is payable April 1 and October 1 and is redeemable in whole or in part at any time on six months' notice at the company's option, while stock redeemed in any circumstances, including liquidation of the company, is entitled to a bonus of 5 per cent if redeemed on or before that date. The company has done consistently well from the beginning, the ordinary dividend being 8 per cent. for 1903-4, 9 per cent. 1904-5, and subsequently 10 per centl for each to 1912-13. The profits for last year, like those of many other industrial concerns in England, were adversely affected by the coal and dock strikes, but in spite of this the profits, after meeting all expenses, allowing for depreciation, etc., amounted to £39,865, sufficient to cover debenture interest nearly nine times.

* * * *

A large part of the Bridge Paper Mill at Tovil, near Maidstone, in the county of Kent, as well as nearly one thousand tons of wood pulp which had been stacked in the vicinity of the mill, have been destroyed by fire and the damage is estimated at $144,000. The Bridge Paper Mill, which is the property of A. E. Reed & Co., Ltd., who are also owners of the Straw Mill at Tovil—a much larger paper mill—was established 20 years ago and is constructed of brick and stone. It was in the coating rooms, forming part of a building 230 feet long, that the fire occurred. Naturally the largest part of the $144,000 damage done was in that department. The building was a three storey one in addition to a basement and contained five coating machines all of which were destroyed in addition to a considerable quantity of paper.

* * * *

The annual meeting of Messrs. A. M. Peebles & Son, Ltd., paper mill owners was held the other day in London, George T. Maddick (Chairman of the Company) presiding. In moving the adoption of the 17th annual report and balance sheet the President remarked that the company had had a trying year. Labor troubles had sent coals up to a price almost unheard of at their mills. Their steam plant was in such an efficient state that they consumed nearly 1,000 tons less coal, despite turning out more paper than in the previous year, but yet the increased cash cost was only a few pounds under £3,000. Chemicals, pulps and every other article were higher in price. They had also to contend with freight difficulties in carrying Esparto. Last January they had for the first time in the history of the mill differences with their men and some 100 workers handed in a fortnight's notice for shorter hours. It came to a question of shutting down or giving eight hours shifts, and as a trial was decided upon it meant the payment of £1,750 more a year in wages. The extra costs imposed on the company altogether for their past year meant an expenditure of £7,250, while the price of paper had not gone up and he attributed this to foreign competition. The directors of the company felt the disappointing nature of the balance sheet and had decided to draw only one fourth of their fees.

* * * *

Dealing with the labor question the vice-president of Messrs. Peebles (Mr. John H. F. Walter) observed that he had received several deputations of the company's workmen on the question of shorter hours. They were quite ready to work less time, but they objected to taking less wages. When he asked the workmen whether they would like to work an eight-hour shift instead of twelve hours they seemed very pleased, but said they could not take home less money. He asked them whether they realised that the ordinary shareholders had received practically no dividends for five years and what they would consider was a fair return on the £100,000 which those shareholders had put into the mills. They agreed that 5 per cent. would be a fair return. He put it to the men that this meant that the company was £23,000 behind hand. Unfortunately the price of paper was barely, if at all maintained. In reply to nearly every case profits of other mills had been reduced. He had hoped they might have been in a position to put in another machine and enlarge their art mill, which would considerably reduce working expenses, but it would require a large sum of money, which at present was not at their command.

* * * *

The China Clay trade at the moment of writing is absolutely at a standstill owing to a strike amongst the workers. Indeed, the stirke has lasted since the first week in August, but lately it has assumed large proportions and some of the American paper mills are reported to be in a very bad way for the want of China Clay from Cornwall. Since the beginning of this year your London representative has pointed out the need for Canada developing her resources as regards China Clay for paper making. There is a rich harvest awaiting Dominion speculators in this respect as the English trade is not to be depended upon and the demand exceeds the supply. During the past week large forces of police have been drafted into Cornwall to deal with the strikers. Sir Geroge Askwith of the Board of Trade (who sometime ago was in Canada studying the Dominion laws in regard to strikes) has written to the Workers union intimating that the employers cannot afford to grant the demands for higher wages when the working hours are only seven and seven and a half per day.. They urge that the wages paid are adequate and that the men's earnings are the highest of any large industries in the West of England. The employers have now established a committee, not to negotiate wages, but to arrange a scheme of uniformity amongst themselves to be observed throughout mid-Cornwall. The men say that the employers can afford the minimum wage of $6 demanded and add that they have worked and some times eight and a half hours. They add that their labor is skilled. Both sides are very firm and there is no evidence of a termination of the strike for at least a fortnight or three weeks hence.

* * * *

The Arden Papermaking Co., Ltd., is in liquidation and a liquidator has been appointed by the creditors. The statement of affairs shows liabilities at £15,380 and the total estimated assets, subject to realization, as £9,565. The deficiency as regards creditors is £2,280, the total deficiency amounting to £15,380. Unreserved creditors are returned at £9,923 and estimated preferential creditors at £170, 7s. 5d The company's mill will be offered for sale as it stands, and if a purchase is not found the plant and machinery will be sold piecemeal.

* * * *

Carron Grove Paper Mills, which is close to Glasgow, has been the scene of a big fire and the damage done reaches £20,000. The fire occurred near the driving plant house, driving plant house, containing two 1,100 h.p. turbines and electric plant. The building affected measured 240 feet by 120 feet and in it was stored over 2,000 tons of Esparto grass. Naturally the fire spread very rapidly and the brigade on the scene was that of the Vale Paper Co. (Messrs Luke) who arrived with their engine and attacked the flames in a determined manner. The interior of the building became a red hot mass and the iron frames all huckled up. So bad was the outbreak that the Glasgow Fire Brigade had to be called out to save other parts of the mill and assist the Vale Paper Co. fire fighters. Three hundred and fifty hands are employed in the mill and the greater are thrown idle for sometime.

* * * *

By the way the directors of the Carron Grove Paper Co., Ltd., have resolved to increase the capital by the creation of 20,000 new ordinary shares of $24 each. They will issue at par 4,910 new ordinary shares, bring up the total issue to 12,000 shares. They have resolved to apply $117,840, being portion of the reserve fund, in payment of the amount due on those 4,910 shares, which are to be issued to present holders in proportion to their holdings. The directors of the East Lancashire Paper Co., Ltd., announce a dividend of 5 per cent. on the bonus shares and 10 per cent. and 5 per cent. bonus on the ordinary and preference shares for the past six months. Olive Bros. have decided to pay three half years back interest, whilst the Roach Brigde Paper Co., Ltd., intimate that a dividend at the rate of 10 per cent. for the past six months.

* * * *

W. A. Walmsley Wood, of Messrs. Charles Walmsley & Co., Ltd., paper makers engineers of Bary, has returned home after a business trip in Canada and America.

USES FOR SAWDUST.

Not so very long ago, about the only real use anyone had for sawdust, was for packing ice. That was when small local saw-mills were more common, and the amount of this form of waste wood was, or at any rate appeared, comparatively small. Now, when the tendency is to consolidate these into large mills with a capacity of several hundred thousand feet of lumber per day, the daily waste in sawdust is seen to be enormous and much experimenting is being done to discover new methods of utilizing it.

Perhaps the most promising venture in sawdust utilization in this country is the manufacture of ethyl (or grain) alcohol. The sawdust is treated with sulphuric acid under suitable conditions, resulting in the formation of sugar, which is then fermented to produce alcohol. Several plants have been erected to produce alcohol from wood in this manner, and, though there are some difficulties still to be overcome, the ultimate success of the process on a commercial scale is assured.

Sawdust has been successfully manufactured into briquets for fuel for a considerable time in Europe by a very simple process. The shavings and sawdust are first steam-dried, the water contained in the wood being thus evaporated and the resin almost liquidified. The sawdust is then compressed under heat into briquets of the desired size the contained resin acting as a binder. A firm in Vancouver is engaged in a similar line of manufacture, the sawdust being compressed into cylindrical tube where it is cut into short lengths by a revolving knife, emerging in the form of small round briquets. These briquets are clean to handle, easy to kindle, and leave very little ash.

In England, sugar is manufactured on a commercial scale by treating sawdust in closed retorts with weak sulphurous acid under high pressure. In Austin, Texas, also, a plant is being built to manufacture stock food from sawdust, by a somewhat similar process. The tar, pitch and turpentine are removed from the sawdust leaving only sugar and fibre to which is added forty per cent. of cottonseed meal. The mixture is sold for fattening cattle.

Two and one half parts of clean sawdust mixed with two parts sand and one part cement make a warm, long-wearing and sound-proof floor, to which carpets can be tacked with less injury than to a board floor, and which has the advantage over a cement floor in being more elastic. These qualities should win an extensive use for this form of flooring, which has the additional advantage that it can be stained to harmonize with interior finishings by the addition of color to the mixture while in a semi-liquid state.

The sawdust of certain kinds of wood is used in considerable quantities by manufacturers for metal polish, for packing, for meat curing, for making safety explosives, and composition novelties, and for fibre and pulp manufacture. Patent cleaning powders for use on carpets and rugs consist principally of sawdust, lightly moistened by some cheap mineral oil.

WOODPULP SILK PRODUCTION IN FRANCE.

The exports of artificial silk from France continue to grow year by year, according to a recent British consular report. The figure for 1911 was 179,200 kilos. (394,240 lbs.), as compared with 161,700 kilos. (355,740 lbs.) and 78,500 kilos. (172,700 lbs.) in 1910 and 1909 respectively.

The figures for 1912, which have been published by U.S. Consul General, Frank H. Mason, show a further increase of manufacture. Writing from Paris he says:

Considerable progress was made in the manufacture of artificial silk in France during 1912, and on account of the increased prices prevailing for true silk, largely augmented profits were realized. The French company exploiting the viscose patents in this country has a profit for the year of about $328,100, an increase of $77,200 over 1911. This profit was in no way due to an increased production. The daily output of the company in both years amounted to 1,763 pounds, or about 530,000 pounds per annum. The net profit per pound was thus about $0.62. The incresed profits were due to higher sale prices and a decrease in the cost of manufacturing.

The factory, situated near Dieppe, is taxed to its utmost capacity, and the demand is such that a larger output is of the most urgent necessity. The double looms at present at work consist of 40 lines each of 50 shuttles, or 2,000 shuttles in all; these looms can be lengthened by 5 shuttles. In addition, trials of electric power on the looms have given most satisfactory results; 100 shuttles are now electrically driven, and 250 additional shuttles of the same design are on order. The production of the electrically driven looms is four times that of those now in use, and in this way the company hopes to be able to produce over 1,000,000 kilos. (2,204,600 pounds) yearly, the consumption of which is already assured on account of new uses found for viscose silks for millinery, curtains, furniture covers, etc. The company states that, provided it can effect a still further slight reduction in cost, artificial silk can be sold cheaper than cotton goods.

Information which this consulate general has in hand would indicate that viscose silks cost under 7.50 francs per kilo. ($0.67 per pound) to produce.

It is expected that the newsprint mill of the Ontario and Minnesota Power Co. at Fort Frances will be in operation before the end of the year. Good progress is being made in installing the machines.

TARIFF REFUND CONTROVERSY SETTLED.

(Special to Pulp and Paper Magazine).

Washington, D.C., Sept, 9, 1913

The controversy over the free admission of Norwegian and Swedish pulp which has been going on in the Treasury Department for the last month, has at last been brought to a successful close as far as the importers are concerned. A few weeks ago, when Sweden was granted privilege of shipping pulp and paper into this country free of duty, under the provisions of Section 2 of the Canadian Reciprocity Act of July 26, 1911, the Treasury Department claimed that such shipments which are generally routed vis Hamburg or some other port, on through Bills of Lading, were not direct and therefore were not entitled to free entry. The protest met with much disfavor on the part of the shippers, and to such an extent that Secretary of the Treasury, McAdoo, placed the matter in the hands of the Attorney General.

Assistant Attorney General Denison, who passed upon the question has now informed Secretary McAdoo that such shipments were direct within the meaning of the law; therefore, hereafter, wood pulp and paper destined for the United States but trans-shipped at some intermediary point will be admitted free from all European countries having favored nation treaties with this country.

The decision of the Assistant Attorney General is given herewith in full.:

September 4, 1913.

The Secretary of the Treasury.

Sir.—I have the honor to reply to your letter of August 28, 1913, requesting my opinion on the following question:

> Whether wood pulp shipped to the United States from Norway on through bills of Lading but trans-shipped en route at Rotterdam would be entitled to entry free of duty under the decision of the United States Court of Customs appeals, rendered on May 12, 1913, published in T.D. 33434.

I am of the opinion that such wood pulp is entitled to free entry, assuming of course, that it is the product of Norway and otherwise conforms to the conditions prescribed by Section 2 of the Act of July 26, 1911. In this I agree with the opinion of the Acting Solicitor of the Treasury, dated August 18, 1913.

The point presented for consideration is whether such goods are "imported therefrom (i.e., from Norway) directly into the United States" within the meaning of the Statute referred to.

Certainly this importation is "direct" in the commercial sense for there is no intervening commercial transaction, Also, it is "direct" in the transportation sense, for the goods come on through bills of lading, without other pause than that incident to the necessities of conveniences of transportation. And it is "direct" within the common policy of our customs and reciprocity laws. by which, having originated in Norway and having been from the first destined to this country, the goods will be considered as imported from Norway and not from Holland (United States vs. Luyties, 130 Fed. 333, C.C.A., 2nd C., Millar vs. Millar, 17 Fed. Cas. No. 9546; Re Booth, T.D. 338; Grant vs. Peaslie, 9 Fed. Cas. No. 1143; Griswold vs. Maxwell, 11 Fed. Cas. No. 5838; Re Leerburger, T.D. 25510; Re Hermann Bros., T.D. 24447), always with the qualification that they have not entered the commerce of the intervening country (Re La Montagne, T.D. 21565; Acker, Merrill & Condit, vs. United States, T.D. 31481).

Even under the old "direct trade" statutes (e.g., Act March 3, 1865, Section 6, and Act, June 6, 1872, Section 3) it was ruled by the Secretary of the Treasury that the words "directly imported" did not require the transportation to be accomplished entirely in a single bottom (T.D. 225), though they did exclude any commercial pause in the intermediate country (T.D. 1862; Powers vs. Comly, 101 U.S., 789).

The closest analogy to the present case is the decision of the Court of Customs Appeals in United States vs. United Cigar Stores Co., T.D. 31505 (affirming T.D. 30643). The statute there construed (Section 5, Act August 5, 1899) provided that certain privileges of free entry should be granted goods of the Philippines coming by "direct shipment from the country of origin to the country of destination", and the court held that the condition was satisfied by a BONA FIDE shipment on through bills of lading, even though these were trans-shipped at Hong Kong. In reaching this conclusion the Court said:

Direct Shipments means no more than **directly imported**, and if Philippine products invoiced for the United States on a through bill of lading have been so trans-shipped as not to permit of their commingling en route with the commerce of any other country, the condition for direct shipment has been fulfilled according to the purpose and meaning of the statute." (T.D. 31505).

I perceive no distinction between these authorities and the present case unless there is some peculiarity of purpose in the present act which would require the other construction, as for instance a purpose to foster steamship lines between the country of production and the United States rather than between the intermediate country and the United States. It is evident, however, that no such purpose existed. Indeed it would hardly be applicable to this traffic with Canada (which is the only traffic especially dealt with by the Act), for that is conducted mainly by rail. In fact, the real purposes of Congress are well understood to have been (1) to make a step toward reciprocity, and (2) to obtain a supply of pulp wood on favorable terms. Neither of these purposes would be furthered in any degree by putting the unusual interpretation on the words "imported directly," but on the contrary they require the interpretation that I have given, in order to permit a fair and equitable operation.

It is evident that the clause was inserted as a precaution against abuse of the privilege or its use on behalf of countries other than that of production, as was the intention of the similar clause in the Philippine case (T.D. 30643, p. 555)

For these reasons I am of the opinion, as above stated, that a trans-shipment at Rotterdam, of a merely transportation character not constituting any commercial interruption in the journey, would not prevent those goods from being "imported directly" from Norway.

WINFRED T. DENISON,
Assistant Attorney General

Approved:
JNO. W. SAWS,
Acting Attorney General.

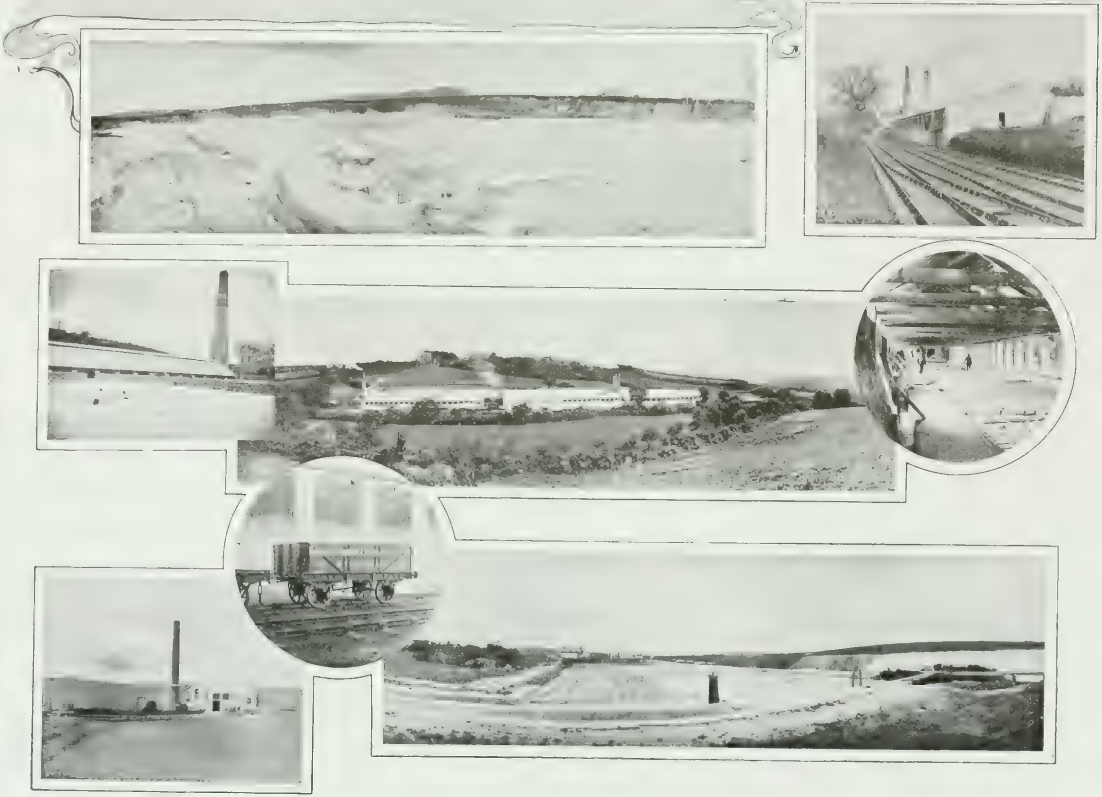
Following the receipt of the Assistant Attorney's General letter, Assistant Secretary of the Treasury Hamlin wired the collector at the port of New York, as follows:

> "Referring to T.D. 33691 Department decides on advice Attorney General that right to free entry wood pulp and paper from certain European countries is not affected by trans-shipment en route when merchandise was in good faith destined on through bills of lading for United States at time of original shipment."

Hon. W. H. Hearst, Minister of Lands, Forests and Mines for Ontario is calling for tenders for the right to obtain licences to cut the red and white pine timber on timber berths in the township of Thistle and McWilliams in the district of Nipissing. The tenders will be received up to October 30th.

Scenes of Great Cornish Clay Strike

North Cornwall China Clay Co., Limited



Clay Pit & Sand Drags Stannon Moor
A Clay Tank & Kiln at Wenford
A Clay Linhay at Wenford
Numbers 1, 2 and 3 Kilns at Wenford
Engine Shed & Pumping Gear Stannon Moor
Railway Siding & Kilns at Wenford
A Clay Dry at Wenford
Mica Runs Stannon Moor

A GENERAL STRIKE IN THE CORNISH CLAY FIELDS

Special to the Pulp and Paper Magazine.

The West of England and Great Beam China Clay Company's well-known Dorothy China Clay Pit

The course Granite moor and source of clay showing the hut-circle stones and the North Cornwall China Clay works in the distance

Since my last despatch, a sombre shadow has overtaken the whole of the Mid. Cornwall China Clay Industry and the prospects of an immediate solution without some exceptional moderating counsels prevail are seriously threatened. The propagation of the doctrine of Trade Unionism amongst the 5,000 China Clay Workers only began just over a year ago and nothing has been more remarkable, than the rapidity with which the action of a minor section had developed into a general strike. On the eve of this menacing industrial crisis three well known firms, "The West of England & Great Beam China Clay Co., Messrs. Martin Brothers of Plympton, Devon, and S. Stephens, Cornwall, and Messrs. North & Rose of S. Austell, made the announcement than at advance of 1s. 6d. per week per man had been decided upon and there is little doubt that had this action been emulated by the other firms, S. Austell and district would not have experienced what it has. This increase to the cost of the West of England and Great Beam Co. alone amounts to over £4,000 per annum. The disatisfaction first asserted itself at the Carne Stents China Clay Works, which have not long been resusitated by Messrs. Payne & Co., over a refusal to grant what other firms had done. Here the men's representatives met and whilst appealing to some who decided to strike, the manager (Captain R. Payne) arrived on the scene and a rather heated altercation ensued. Captain Payne informed the men's agent that he could not recognise him or his authority to give notice for the men and if they left, they must take the consequences in accordance with their agreement to give or take a week's notice.

The Head Offices of the West of England and Great Beam China Clay Company, whose Annual Output Exceeds 200,000 tons per annum.

IMPROVED METHOD OF HANDLING WOOD DEPARTMENT.

(Special to Pulp and Paper Magazine.)

Bellows Falls, Vt., Sept. 10, 1913.

The important changes went into effect here on September 1st, in the International Paper Company's method of handling its wood department. For several years the wood has been cut and sent down the river by subsidiary corporation known has the champlain realty company with head quarters at White River junction. This is given up and office closed.

Hereafter the wood department for all of the mills of the International will be in charge of a Mr. Stearns at Portland, Me. He will have a man to over see the production and furnishing of wood for the local mills, and other men for each of the plants of the company, all acting under the Portland office.

The company has just received the last of its 15 cars of prepared wood a week that has been coming several months from New Brunswick by water to Portland and by rail from there. The pile in the North Walpole yard is immense and may be seen from a long distance.

The effort to get the larger part of the drive in here from the White river this season has been abandoned, and the company is hauling the logs out on the banks near the village of Sharon, where they will remain until next season. The low water continuing so late has made this course necessary. A small part of the drive reached here eight or ten weeks ago, ahead of the Van Dyke drive, and is boomed here, while much is still high on the banks of the Connecticut and White rivers up as far as Sharon awaiting water enough to drive them here. Only about one-third of the logs which started from the town of Rochester and above will reach here this fall.

The company has bought of the Connecticut Valley Lumber Company 1200 cords of four-foot spruce logs, which are now in the Connecticut above Wilder on their way here from the head waters of the Connecticut, but making scarcely any progress. Many train loads of logs are being received here from points in Canada.

The discontinuing of the manufacture of news paper here during the past year will reduce the amount of wood used in the manufacture of pulp from about 32,000 cords to 23,000 cords, the latter used in making the heavier grades of paper and a portion shipped to other points where needed. Just now the company is shipping large amounts of wood pulp from here to Turners Falls, where the supply is short on account of low water. There is a large stock of pulp on hand here owing to the water have averaged the last year much higher than for several years. Just now it is lower than for several years, and only paper machines are run, the pulp mills being idle on account of lack of water.

CHARGING THE BEATER WITH SHEET PULP.

Although the charging of half-stuff into the beater appears very simple, there are some points which require consideration, and these are noted in a recent issue of the Papierfabrikant. Cellulose in the form of dry sheets can be thrown into the engine sheet by sheet. Very large sheets should be previously torn into two pieces. It is dangerous to give three or four sheets at one time. Very dense and dry cellulose should be put through the kollergang or pulper beforehand. When it is not desired to employ the kollergang or pulping machine the best way to feed dry cellulose in roll form is to thrust an iron rod through the middle of the roll, which is then placed on a stand so that the cellulose may be unrolled, torn into pieces and served into the beater. It is not advisable to place one end of the roll under the grinding roll so that the cellulose unrolls itself, as all kinds of mischief can be caused in this way.

NEW PAPER WAREHOUSE.

Victoria Paper and Twine Company, Limited, have completed negotiations and commenced the erection of a solid stone and brick, heavily mill constructed, paper warehouse, which will be located on the south side of Wellington street W. immediately adjoining the Loretto Abbey property. The new structure will be four stories with a fifty foot frontage, and a depth of two hundred and ten feet. Each floor will have a net area of ten thousnad square feet. The building is of extra heavy construction and will be one of the most modern paper warehouse buildings on the continent. The equipment and shipping facilities will be complete in every detail and the building is so constructed and the shipping facilities are so situated, that every satisfaction in the matter of prompt shipment will be given to the many customers and friends of this Company. The general plans have been carefully thought out with consideration for future requirements. Some idea of the steady growth of this Company can be gathered from the fact that five years ago they were located at 46 Colborne Street with about seven thousand square feet of space. Shortly after they located in their present warehouse at 415-7-9 King Street, W. with more than double the space of the Colborne Street location, and this new building will be three times the size of the King Street building. They expect to have the new building completed and ready for occupation March 1st, 1914

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

The Parkersburg Corrugating Paper Company, a new concern the head of which is S. W. Goff, of the South Side, has leased a building at Parkersburg, W. Va., which is now being fitted up for the operation of the new plant. New machinery at a cost of $10,000, has been received here and will be installed in the building, and it is the intention of the company to manufacture corrugated paper of every description, as well as cartons for the shipment of tobacco, whiskey, parcel post and express packages. The machinery will be installed at once, and it will be a matter of only a short time until the new plant is in operation.

Work at the plant of the Northwestern Paper and Flax Fibre Company, which was recently started at Grand Forks, N. Dak., is going along in fine shape. Although no pulp has been finished yet, the machinery has been kept busy turning out tow every day which is being stored for future use. The chaff which is left after the straw has been run through the machinery is to be used by the Red River Power Company and a number of laundries for fuel. For the purpose of taking care of this chaff a small storehouse is now being erected at the plant. Twelve men are employed at the factory now and as the business increases the help will increase.

J. C. Broderick, of Montreal, Canada, spent several days in New York city last week. He is managing director of the Canadian China Clay Company, of Montreal, a concern that was recently started to mine and develop certain china clay fields in Canada. Mr. Broderick says his mine is now producing an exceptionally fine grade of clay, which is particularly adapted for paper making uses.

George S. Thompson, one of the pioneer manufacturers in New York State, died on August 25, at his country home in North Hoosick, N. Y., after a long illness. He was seventy-four years old, a native of Troy, N. Y., and was the son of John L. and Mary P. Thompson. Mr. Thompson was president and treasurer of the Stevens & Thompson Paper Company, of North Hoosick, director of the Stevens & Thompson Paper Company, of Greenwich, N. Y., the Walloomsac Paper Company, and was interested in the Walter A. Wood Mowing and Reaping Machine Company, of Hoosick Falls., the Troy Savings Bank, the Security Trust Company, of Troy, and the Troy and Greenbush Railroad Company. He is survived by his widow, one son, two daughters and three brothers.

James Freeman Bush, formerly of Springfield, and for many years actively concerned with the paper industry of Massachusetts, died on August 24 at the Maine General Hospital in Portland, Maine., at the age of fifty-three. Mr. Bush began his career in the paper trade as a salesman for the Worthy Paper Company, of Mittineague, Mass., with which company he remained for sixteen years. From this position he became manager of the Woronoco Paper Mill at Woronoco. While at this plant he built a power house and made extensive improvements in the property. From Woronoco he went to Sandy Hill, N. Y., to accept a position with the Union Bag and Paper Company, and latter he went to the Oxford Paper Company at Rumford Falls, Me. In 1908 he took charge of the Keith Paper Mill at Turners Falls, remaining there until January 1, 1912, when he resigned to be connected with the Union Bag and Paper Company in New York.

The estimated value of pulp wood rafts towed across Lake Superior this season is $100,000. The last of five giants rafts made up at Port Arthur, arrived at Ashland, Wis., last week, and the total loss in shipment is summed up in a very few cords. It is said that this has been not only the biggest season for water shipment of Canadian pulp wood, but the most successful. Always heretofore at least one raft has gone to pieces, with the result that the owners have suffered heavy financial loss. It will be months, perhaps, before all the wood has been removed from the water at Ashland and transferred to cars ready for shipment to mill yards in Appleton.

The Bear River Paper Company of Petoskey, Mich., which recently took from the receivers the affairs of the Bear River Paper and Bag Company, resumed making paper on Sept. 1st in the plant shut down several months ago.

J. G. Mayo, of Toronto, Canada, becomes manager of the new $1,000,000 paper mill recently erected at Laine, Miss., near here, by the Southern Paper Company on Sept. 1st. He succeeded A. G. Maynes who has been manager since the mill was first placed in operation last spring and whose resignation was recently accepted. Mr. Maynes and family left their home in Pascagoula this week for New York, where they will reside.

The Tonawanda Board of Paper Company., is arranging to build a large brick addition to its plant on Goose Island, New York. It will also build a modern paper unloading tressel along the Tonawanda creek at the east end of its plant.

The Duboc Paper Company, of Chicago, which was recently incorporated under the Illinois law, with a cash capital of $20,000 began business on September 1st. The officers are O. A. Miller, president; A. M. Miller, Vice-president; Charles Duboc, secretary, treasurer and manager. The company leased for a term of years the first floor and basement of the new fireproof Borland Building at 712 Federal street. The company will carry a general line of paper for the printing and lithographine trade, giving particular attention to the higher grade of writings, bonds, coated and covers.

Considerable interest is being manifested on the Pacific coast in the future possibilities of manufacturing in British Columbia in view of the tariff situation. In this connection the published statement that the Everett Pulp and Paper

Company has filed articles of incorporation in British Columbia with a capitalization of $670,000 ,with the principal office at Everett, Wash., excites speculation along with the rumors of a threatened movement of paper manufacturing concerns from this country into Canadian territory on account of pending tariff legislation.

At a recent meeting of the directors of the Bryant Paper Company ay Kalamazoo, Mich., resolutions of sympathy were passed and sent to the widow and relatives of the late H. H. Everard, a former member of the board of the board of directors of that company. Mr. Everard died suddenly from injuries received while on a trade excursion into northern Michigan and Canada. The resoluttions will be printed on parchment paper made at the Bryant mills and then forwarded to the Everard family.

The directors of the Continental Paper Bag Company, of 16 Battery Place, New York, recently elected Alonza M. Burbank to the board in place of D. Fisher, deceased. Mr. Burbank is also chairman of the board of directors of the International Paper Company and was, until last January, prseldent and treasurer of that company. The acquisition of Mr. Burbank to the Continental Board can but be a very strong asset to that company.

Thomas Mellor, who resigned his position several weeks ago as head of the Labor Bureau of the American Paper and Pulp Association, 50 Church Street, New York, began his new duties with the Wandel Screen Company at Walpole on the first of the month. Mr. Mellor is well known in the Eastern Paper manufacturing industry. He was head of the association's labor bureau for a number of years, prior to which he was a practical paper maker at Watertown, N. Y. He was at one time connected with the International Brotherhood of Paper Makers, and for many years has been prominent in the labor unions.

The owners of the Richmond Paper Manufacturing Company, Richmond, Va., have transferred their holdings in that company to the Standard Paper Manufacturing Company. The mill businsss will be conducted as formerly and without interruption under the name of Richmond Paper Manufacturing Company and there will be no change whatever except in ownership. The manufacture of the Richmond Company's old-established brands of blotting paper will be continued without change of formula and all outstanding contracts will be undertaken by the new owners.

A plan is under way for the building of pulp docks at the port of Oswego, N.Y., for the handling of paper mill materials and pulp wood, much of which is trans-shipped at this point to the mills of the vicinity. It is understood that several paper manufacturers are behind the scheme and that the dock will be equipped with modern machinery for unloading and handling the cargoes. It is reported that W. H. Eshbaught, general manager of the Anticosti Island property in the lower St. Lawrence, is interested in the movement.

The American Strawboard Company is the defendant in a suit for $5,000 brought by George B. Sitler of New London, Conn. The Plaintiff, who is a brakeman on the Central Vermont Railroad, alleges that the defendant company strung two electric light wires across the railroad track to their mill, the Uncas, at Thamesville, Conn., and in the performance of his duties as brakeman the wires, which had been hung too low, caught him under the chin and threw him from the car, cutting and bruising him on the head and ear and injuring him internally. The writ is returnable at the September Term of the Superior Court in New London.

OTTAWA NOTES.

Ottawa, Ont., Sept. 12th.

The J. R. Booth firm of Ottawa, lumber and pulp and paper manufacturers, have lost $115,000 in the past ten days as a result of two fires in which the sawdust conveyor belonging to the big plant and the timber mill were destroyed and other damage caused. The fires occured a week apart. The first one destroyed the sawdust conveyor, causing about $15,000 damage and stopping operations for a week. The second, which occurred last Sunday, originated from some unknown cause in the timber mill and destroyed that building, which was a two storey frame structure which had been rebuilt three years ago and new machinery installed. The platform and some lumber beside the mill also took fire and two auto trucks were destroyed. As this is the fourth lumber fire which has occurred in the city within the past few weeks and the second at the Booth plant it is held in some quarters that incendiaries with an especial aversion to the lumber trade, are at work and the police have been investigating.

After first announcing that, in response to the urgent request of shippers represented by boards of trade, lumber and manufacturers' associations, it would require the Canadian railways to show cause for their abolition of the cartage system, the Railway Commission has changed its mind and decided not to take up the case, which had been set down for September 16 at Ottawa. This removes the last hope of shippers that something might be done in the line of forcing the railways to continue the facilities they have afforded shippers for well over a quarter of a century past. It will, therefore, be necessary after October 1 to make separate arrangements for cartage, a condition of things which will mean greater cost of delivery inevitably unless shippers get together to form a joint cartage organization to take the place of that formerly operated by the railways.

Mr. John R. Booth, although 87 years of age, was noticeable at the recent race meet of the Connaught Park Jockey club, just concluded, as a steward. He was appointed to this position in recognition of the interest he has always taken in horse racing.

Chairman Drayton, of the Railway Commission will return to Ottawa next week and will submit a report to the Canadian Government on the question of control of ocean rates. As is well known, lumber and paper interests in common with other Canadian shippers, have been protesting for years at the high figures charged for transportation across the Atlantic and Mr. Drayton was charged with a mission which involved a proposition to the British Government to cooperate with the Dominion in regulating these rates. It is unofficially understood that the former is favorable to the establishment of an international tribunal for this purpose but that the United States Government will also be asked to co-operate in the plan.

Customs figures for the first four months of the present fiscal year ending July 31, show a substantial increase in the export from Canada of products of the forest including pulp and lumber. The figures were $14,171,000 which is a great deal more than for the same period last year.

"The head of each customer must rest on clean, unused paper which must not be used again," is the manner in which a new regulation governing barbershops recently issued by the Board of Health reads. It is only in line with other regulations which are encouraging the use of paper for drinking cups, towels, etc., as a sanitary precaution.

PULP AND PAPER NEWS

Alex Annandale, of the Canada Paper Co., Windsor Mills, Quebec, spent a few days in Toronto last week.

McLeod and Allen, publishers, Toronto, have removed from 42 Adelaide Street West, to new and larger quarters at 264 King street west.

The saw mills of the Valley City Lumber Co., located near Red Deer, Alberta, were destroyed by fire recently and the loss was a heavy one.

Work is progressing rapidly on the extention to the premises of Warwick Bros. and Rutter, 401 King Street West, Toronto, stationers and publishers.

A. A. Wheat, superintendent of the Kalamazoo Paper Co., Kalamazoo, Mich., was in Niagara Falls, Thorold and Toronto last week spending a few days on business.

New board mills, sulphite plants, and other enterprises, which have projected in Ontario, will, it is understood, not go ahead this season owing to the stringency in the money market.

I. H. Weldon, of Toronto, President of the St. Lawrence Paper Mills, is leaving this week on an extended business trip to the west. He will visit Winnipeg, Calgary, and Edmonton.

The annual meeting of the Canadian Manufacturers Association, which will be held in Halifax, N.S., on September 16, 17 and 18, will be attended by a number of pulp and paper manufacturers from the different provinces.

It is understood that it is the intention of the Spanish River Pulp and Paper Co. to construct a series of reservoirs and storage dams next year so as to better conserve the flow of water on the Spanish river for their mills at Espanalo.

George H. Parks, of New York city, Vice-President of the International Paper Company was a recent visitor to Sault Ste. Marie. Mr. Dodge of the International Paper Co. has been on a recent visit to several of the limits of the Company in Quebec.

F. Redmond, superintendent of the Montrose Division of the St. Lawrence Paper Co., at Thorold, Ontario, since 1909, and formerly with the Kalamazoo Paper Co., is resigning. After many years of active and efficient service in his line he intends taking a long rest.

The various lumber and pulp wood companies will send many more men to the woods this winter. A number of firms will more than double their camps. There are many men offering to go to the bush and all the labor necessary can be easily secured. Wages will be about the same as last season.

The Superior Match Co., of Owen Sound, which was formed some months ago and erected a large factory in that town has fallen through owing to lack of capital. The factory building was sold last week by the direction of the Court in order to satisfy a lien held by the contractors on the structure.

George E. Challes of Toronto, who has been spending several weeks in New York, Boston, Philadelphia, and other eastern points for the Riordon Pulp and Paper Co., has returned. He reports that a number of plants on the other side have had to greatly curtail operations owing to low water and general market conditions.

Art Publication Co.Limited,with head offices in Toronto and a share capital of $40,000 has been granted a charter to carry on in all its branches the business of publishers and printers. Quarterly Publications, Limited, Toronto, has also been granted a charter. The capital stock is $40,000 and the concern is empowered to engage in the publishing line.

At the annual meeting of the Lake Ontario Paper Co. held recently at Sault Ste. Marie, Ontario, the following directors were elected:—J. F. Taylor, W. E. Stavert, H. E. Talbot. T. H. Watson, Robert A. Lyon, Thomas Gibson and James Hawson. T. H. Watson was elected President of the Company which will retain its character as a subsidiary company of the Spanish River Pulp and Paper Company.

The great English publisher, Lord Northcliffe, recently spent a couple of days in Quebec city on his way to Grand Falls, Newfoundland, where he inspected the Anglo-Newfoundland Paper and Pulp Mills, which he says, are supplying practically the whole of the news print for three of his London dailies and one weekly. Lord Northcliffe stated that the paper being made at Grand Falls is the best coming to England from any part of the world.

It is expected that the two new digesters, which are being put in by the Riordon Pulp and Paper Co. at Hawkesbury, Ontario, will both be in operation before the end of the year. Good progress is being made on the work. The output of the plant will eventually be about 150 tons per day and plans are under way for installing a bleaching equipment by which a large proportion of the sulphite will be bleached. The company have an enormous stock of pulp wood on hand.

The Dryden Timber and Power Co., Dryden, Ont., recently laid a charge against Charles W. Coomb, Mayor of that town, for unlawfully appropriating saw logs belonging to them. The company allege that logs bearing their registered mark were found in the boom of Mr. Coomb, who, among his other operations, is a lumberman. Mr. Coomb has reserved his defence until the trial before a judge at Kenora, when his friends assert that he will have a complete answer to the charge.

W. J. Gage, of Toronto, President of the W. J. Gage Co. and also President of the Kinleith Paper Mills, who is the founder of the National Sanitarium Association, has been highly honored for the great work that he has waged against the white plague. A few days ago he received official notice that His Majesty King George had approved of his appointment as a Knight of Grace of the Order of the Hospital of St. John of Jerusalem. The distinction is all the more prized when it is considered that there are only some sixty Knights in the chapter.

J. A. McAndrew, of Toronto, secretary and solicitor of the Abitibi Pulp and Paper Co. has been spending a few weeks at Iroquois Falls, Ont. He reports that the construction on the new plant of the company is progressing favorably and the contractors now have every branch of the work well in hand. Wm. Whyte, superintendent of the company was in Montreal last week. He recently had the pleasure of entertaining Hon. Frank Cochrane, Minister of Railways and Canals and Hon. W. H. Hearst, Ontario Minister of Lands, Forests and Mines, who inspected the work in progress and were much impressed with the great future of the Abitibi plant and facilities.

CANADIAN MARKETS.

Now that the summer dullness is over business in all lines is expected to improve and already reports are heard of a revival of trade. News print is a little stronger than it has been for some time. Book and writing plants report a better outlook although orders are still comparatively small and not nearly so good as last season while there are, of course, several more plants after business. The one improving feature is in the demand for ground wood pulp and many plants, which had large reserves of stocks, are rapidly converting them into money. One mill is reported to have disposed of over 12,000 tons in the last fortnight. Water conditions are far from satisfactory and some mills have not been able to run all their grinders. The same drawback prevails on the other side of the border, and paper mills are entering the Canadian market for supplies. The sulphite situation is a little easier and prices are a shade lower. This has been caused, not so much in the falling off of demand, as from the fact that plants on both sides of the line have been shut down at different times for repairs. In all other lines of papers the situation remains about the same but jobbers are hoping for a very good fall season. The rag and paper stock outlook is expected to take on more life. There is a better demand for mixed papers but roofing stock is weaker and prices are lower. Book and ledger stock is quiet. The general belief in all branches paper and pulp operations is that the worst has passed and, while the orders this fall may not equal those of last year, there will be a notciceable change now that the holiday season is over and money, in many quarters, is being to oosen up a bit.

Quotations, f.o.b., Toronto, are:

Paper.

News (rolls) $41 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $3.75 to $4.50.
Book paper (ton lots) No. 3, 4c. to 4.50.
Book paper (carload) No. 2, 4.25c.
Book paper (ton lots) No. 2, 4.50c to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3 7-10c. to 4¾c.

Pulp.

Ground wood (at mill), $15 to $16.50.
Ground wood, $21.50 to $24.50, delivered in United States.
Sulphite (unbleached), $43 to $46, delivered in Canada.
Sulphite (unbleached), $43 to $47, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $58 to $63, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft whit eshavings, $1.65 to $1.70.
No. 1 Mixed shavings, 60c.
White blanks, 97½c.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 75c. to 77½c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.10 to $1.15.
No. 1 print manilas, 65c.
Folded news, 45c.
Over issues, 50c.
No. 1 clean mixed paper, 40c. to 42½c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.35.
No. 1 white shirt cuttings, $5.
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.65 to $1.75.
Black linings, $1.65 to $1.75.
News light flannelettes, $4.80.
Ordinary satinets, 70c.
Flock, 85c. to 87½c,
Tailor rags, 55c. to 57½c.

Quotations f.o.b. Montreal are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book papers, carloads lot, No. 3, 4⅛c. to 4½c.
Book papers, broken lots, No. 3, 4¼c. to 4¾c.
Carload lots, No. 2, 4¾c.
Manila B., 3¼c. to 3½c.
Broken lots, No. 2, 5c. to 5½c.
Carload lots, No. 1, 5¼c. to 6¼c.
Broken lots, No. 1, 6¼c. to 6¾c.

Pulp.

Sulphite Easy Bleaching, f.o.b. Montreal, $44 to $45 per ton.
News quality, f.o.b. Montreal, $42 to $43 per ton.
Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4.00 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $16.00 f.o.b. Montreal.
Ground Wood, No. 2, $22 to $24, delivered United States.

Wrappings.

Fibre, 4c. to 4¼c.
No. 2 manila, 3¾c. to 4c.
No. 1 manila, 3½c. to 4½c.
Kraft, 4c. to 4¾c.

Paper Stock.

No. 1 hard shavings, $1.90 to $1.95.
No. 1 soft white shavings, $1.60 to $1.75.
No. 2 soft white shavings, $1.15.

Mixed shavings, 50c. to 55c.
White blanks, 85c. to 90c.
Ledger, $1.15 to $1.35.
No. 1 book stock, 90c.
No. 2 book stock, 45c. to 55c.
Manila envelope cuttings, $1'05 to $1.10.
White envelope cuttings, $1.75.
No. 1 print manilas, 55c. to 60c.
Folded news, 55c. to 60c.
Crushed news, 45c. to 50c.
Good mixed paper, 40c. to 43c.
Old white cotton, $2.50 to $2.75.
Mixed cottons, $1.60 to $1.75.
Light cottons, $1,75.
No. 1 white short cuttings, $5.50 to $5.75.
Light print cuttings, $4.00 to $4.50.
Fancy shirt cuttings, $2.10 to $2.50.
Blue overall cuttings, $3.45 to 3.55.
Brown overall cuttings, $2.52 to $2.50.
Black overall cuttings, $1.55 to $1.70.
Linings, $1.50 to $1.75.
New unbleached cotton, $4.60 to $5.00.
Bleached and unbleached cotton, $4.50 to $5.00.
Bleached and unbleached shoe clips, $4.00 to $4.50.
New light flannelettes, $3.75 to $4.25.
Flock satinets roofing stock, 95c. to $1.00.

NEW YORK MARKETS.

New York, N.Y., September 11, 1913.

Quietness in chemical pulps of all descriptions continues to prevail here. Very little, if any buying is reported by the principal distributors. The tendency among buyers is to wait the outcome of the pending tariff changes at Washington. Many of the consumers are of the opinion that as soon as the bill becomes a law prices on foreign will be greatly reduced., which will be followed by a corresponding reduction in the domestic lines. Pulps from the various countries enjoying favored nation treaties with the United States are all coming in free now. The holding up of shipments coming from Sweden, on account of not being direct has been discontinued. Importers in their endeavors to create business by offering duty concessions have not proven very successful. Prices to-day all along the line are higher than they were two years ago when reciprocity was granted with Canada, and the allowing of the duty in many instances does not bring the values down to the quotations of 1911. Domestic makers appear to have plenty of stocks on hand and are competing severely with the foreign packers. A continuation of this cannot but ultimately mean a break in the market. This is what the manufacturers of paper are looking for, and as many of them are pretty well contracted for over this and part of next year, they are in a position to await developments.Quotations, however, during the intervals, have undergone no changes.

Ground wood pulp is showing more activity daily. Many consumers have visited the local market during the past fortnight and endeavored to cover their requirements. The present output of the ground wood mills is very light, as water conditions are not sufficiently good to permit operations on a heavy basis. Judging from the reports eminating from the various ground wood mills who only make pulp for sale, supplies are adequate to take care of the demand for the next three or four months, but they realize the great need of additional supplies by the consumers, and are very firm in their views. Prices, therefore, continue to be well maintained on the basis of quotations herewith given.

Conditions in the waste paper market are virtually the same as they were two weeks ago. Though the turn of the month has not brought forth any great amount of business, trading is steady in all lines and the market reflects a very strong undertone. Prices are stiffening perceptably and quite a few packers have already withdrawn their old prices. The tendency is now decidedly upward with a favorable ourlook for a continuation of same throughout the coming fall months. Though buying has been light all during the summer, stocks have not accumulated to any great extent, and supplies on hand at present in all quarters are not over abundant. General business conditions are inproving, and in consequence consumers of waste papers are drawing more freely on their old contracts, and many of them are now in the market for additional supplies.

Pulp.

Ground wood, No. 1, $18 to $22, per short ton, f.o.b. mill.
Ground wood, No. 2, $16 to $20, per short ton, f.o.b. mill.
Unbleached sulphite, domestic, 2.10c. to 2.15c., delivered.
Unbleached sulphite from Germany and Sweden and Austria 1.88 1-3 to 2.13 1-3c. ex dock, New York.
Unbleached sulphite, all other countries, 2.05c. to 2.30c., ex dock, New York.
Bleached sulphite, domestic, 2.90c. to 3.00c., delivered.
Bleached sulphite from Germany and Sweden and Austria, 2.75, to 3.00c. ex dock, New York.
Bleached sulphite, all other countries, 3.00c. to 3.25c. ex dock, New York.
Easy bleaching sulphite from Germany, Norway, Sweden and Austria. 2.13 1-3c. to 2.28 1-3c. ex dock, New York.
Easy bleaching sulphite, all other countries, 2.30c. to 2.45c. ex dock, New York.
Unbleached sulphate, from Germany, Norway, Sweden and Austria, 1.75c. to 1.95c., ex dock, New York.
Unbleached sulphate, all other countries, 1.90c. to 2.10c., ex dock, New York.
Bleached sulphate, from Germany, Norway, Sweden and Austria, 2.35c. to 2.75c., ex dock, New York.
Bleached sulphate, all other countries, 2.60c. to 3c., ex dock, New York.
Kraft pulp, from Germany, Norway, Sweden and Austria, 1.85c. to 2.05c., ex dock, New York.
Kraft pulp, all other countries, 2c. to 2.20c., ex dock, New York.
Soda pulp, domestic, 2.15c. to 2.25c., delivered.

Paper.

The local trade conditions have improved greatly during the past two weeks, and the demand for paper at this time is most encouraging. In many instances the volume of business reported by individual dealers and the principal manufacturers shows a gain of at least sixty per cent. over that of corresponding periods during the past three months. The recovery of the market, while not coming with the rush that may have been anticipated, is of the gradual increase that places it on a substantial basis, and forests an early return of the previous activity. According to reports of millmen visiting the local trade during the past fortnight, the first of the fall trade has made its appearance in nearly all of the principal manufacturing and distributing quarters. Since the first of the month business generally has shown quite a little improvement, and the ending of the vacation period is expected to give the necessary impetus to the general market activity. Most grades of paper have already made marked gains, and judging from the increased inquiry consumers are evidently taking more interest in the paper decision. The course of the market continues upward, and the interval has witnessed a marked increased advance in Tissues, which are now being quoted 2½ cents higher than they were two weeks ago. Shortly after the turn of the month the principal manufacturers withdrew their former price lists and refused to sell under the new price. The fine papers, such as Writings, Ledgers and Bond also are showing an upward price tendency. Manilas are strong in both price and demand, as also Fibre papers.

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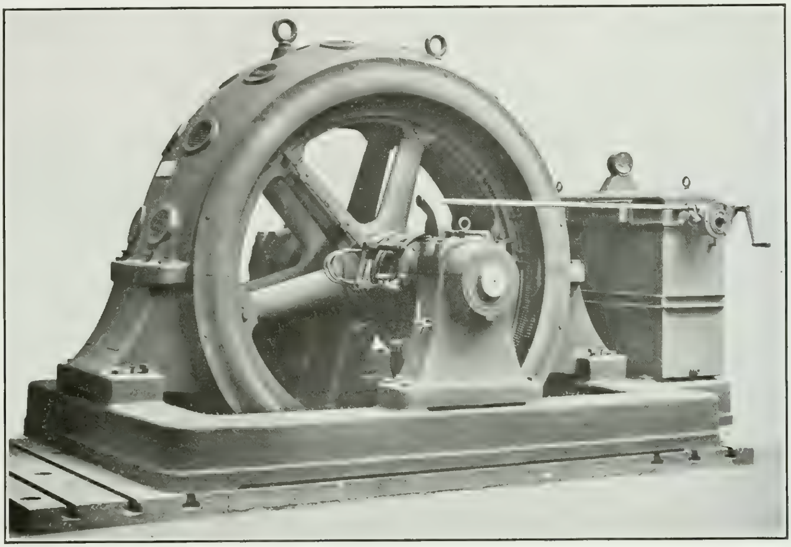

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- 1-1320 H.P. Dominion Coal Company
- 2- 750 H.P. Winnipeg
- 2- 750 H.P. Port Arthur
- 1- 670 Nipissing Mining Company
- 1-540 H.P. Lethbridge
- 1-490 H.P. Dominion Coal Company
- 1-430 H.P. Acadia Coal Company
- 1-425 H.P. Edmonton
- 1-400 H.P. Dominion Coal Company
- 1-385 H.P. Nova Scotia Steel & Coal Co.
- 1-375 H.P. Canada Sugar Refining Co.
- 1-320 H.P. Acadia Coal Company
- 3-275 H.P. Port Arthur
- 1-275 H.P. Robert Simpson Co., Toront
- 1-270 H.P. Lethbridge
- 1-150 H.P. Nova Scotia Steel & Coal Co.
- 2-150 H.P. Acadia Coal Company
- 1-140 H.P. Novia Scotia Steel Company
- 1-100 H.P. Mitchell
- 1-100 H.P. Northern Ontario Light and Power Company
- 2-100 H.P. Winnipeg Technical Schools.
- 1-100 H.P. Larimer Company

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Krafts are moving steadily on an improved demand and mills report that they are from two to four weeks behind Boards are advancing. Already several of the big manufacturers have advanced their prices and issued new lists. Screenings are in a fair inquiry. Books are moving steadily and prices are being firmly maintained. News continues to be subjected to keen competition for the big contract orders, but movement in small lots is being firmly maintained at 2½c. Quotations throughout the list are therefore being firmly maintained, and outside of Tissues, are repeated as follows:

News, rolls, transient business, $2.00 to $2.10 f.o.b. mill.
News, rolls, contract renewals, $1.95 to $2.05 f.o.b. mill.
News, sheet, $2.10 to $2.15, f.o.b. mill.
Book papers, car lots, C. & S. C., $4. to $4.20, f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90, f.o.b. mill.
Writing paper superfine, 11c, to 13c., del. east of Miss. River.
Writing paper, extra fine, 10½c., del. east of the Miss. River.
Writing paper, No. 1, fine, 9c., del. east of the Miss. River.
Writing paper, No. 2, fine, 8c., del. east of the Miss. River.
Writing paper, engine sized, 4½c. to 8c. del. east of Miss. River.
Bond paper, 6c. to 24c., delivered east of Mississippi River.
Linen paper, 7c. to 18c., delivered east of Mississippi River.
Ledger paper, 8c. to 30c., delivered east of Mississippi River.
Manila jute, 4½c. to 5¼c., delivered.
Manila, wood, $2.49 to $3.00 W, delivered.
Kraft, No. 1, $3.65 to $4.00, f.o.b., mill.
Kraft, No. 2, $3.25 to $3.50, f.o.b., mill.
Screenings, $1.75 to $2.12½, delivered.
Boxboards, news, $30 to $32 per ton, delivered.
Boxboards, chip, $28 to $30 per ton, delivered.
Boxboards, straw, $29 to $30 per ton, delivered.
Wood pulp board, $42.50 to $45 per ton, delivered.
Tissue, white, cylinder, 45c. to 47½c. delivered.
Tissue, fourdrinier, 47½c. to 52½c., delivered.
Tissue, jute manila, 52½c. to 55c., delivered.

THE BRITISH MARKETS.

(Special to Pulp & Paper Magazine.)

London, Sept. 6th, 1913.

The paper industry in the United Kingdom is in a fairly active way and most of the mills are working at a good pressure. The holiday season is now gradually drawing to a close, the result being that orders are given out freely and millowners have plenty of work to keep them busy for the next two months on the home and export trades. Most of the manufacturers are still struggling for increased prices, but it is feared that their success in all classes is not very great. Foreign competition harass them in more ways than one and there is an enormous demand for cheap quality papers throughout the Kingdom. In these cheap classes the British papermaker will not dabble; he prefers to turn out a superior quality, and of course, this is the secret of his success financially. Neither Scandinavian nor Germany can meet him in the market for higher grades here and another factor which brings grist to the mill is that most large and successful business houses follow the example of the government in having their own paper for printing and writing made at a suitable mill. Sometimes the order is given through an agent. Newsprint has been in good demand lately and in the course of a month or so all the publishing firms will be running at full capacity in preparation for the autumn and winter trade. By the way, it is now a common thing to see in the streets of London reels of paper displaying in large type "Made in Newfoundland," or "Made in Canada."

There is more enquiry for sulphite and sulphate for future delivery, but buyers are not responding to the high quotations they are given. Mills of course are well supplied and any business done at the moment only concerns small parcel. Agents are keen on business and the Scandinavians are weekly sounding warnings of higher prices. British papermakers appear in no hurry and in all probability another month will elapse before anything serious is ventured upon. It is reported in London from Sweden and Norway that the American market is seeking urgent supplies in Scandinavia. Prices in London are about as follows:—

Sulphite bleached	$55.20 to $60.00
Sulphite easy bleached (1st qual.)	47.00 to 48.00
Sulphite News or strong quality	39.40 to 41.40
Soda unbleached (1st quality)	39.80 to 41.40
Soda unbleached (strong)	38.00 to 40.00
Soda Kraft	38.80 to 39.20

* * * *

In Mechanical pulp the supply exceeds the demand and notwithstanding the low quotations business is remarkably slow. It is stated here today that one or two Swedish firms have succeeded in getting a slight advance for prompt delivery. Note the low quotations as follows:—

Pine, 50% moist, unwrapped prompt	$ 9.20 to $ 9.60
Pine dry prompt delivery	20.40 to 20.60

About a dollar extra is charged for forward delivery.

* * * *

The amount of business passing in the Chemical Powder is satisfactory and prices are unchanged. Bleaching Powder is $25.90 in soft wood casks f.o.b.; Ammonia Alkali, 58 per cent., is $18.24; Caustic Soda, 77%, $24 to $24½; Slat cake, $9½. In the mineral trade China Clay is at a stand still owing to the strike of workers for higher wages. At the present moment there is no prospect of an early settlement, particularly as riots have occurred in the affected area.

* * * *

There is little doing at present in rags, bagging and ropes, so the export trade to Canada and America for the past two weeks has been pretty brisk. New cuttings are slightly easier. It is fully expected that in the course of another month there will be a rush for rages and other paper making materials in the same line.

* * * *

Prices of Esparto are inclined to go higher; indeed, they have slightly advanced during the past week. This is attributable to the difficulties experienced over freight rates, as tonnage is reported to be difficult to secure. However, enquiries are not great just now as most mills are well stocked for sometime to come.

* * * *

The Rosin market is enjoying a lull at the time of writing and prices are down considerably. This market does not appear to have been so prosperous lately.

The town of Thorold, Ontario, is becoming a decidedly active pulp and paper centre. During the past week the machines of the Ontario Paper Co. were put in operation and the plant is working smoothly. John Ryan who is superintendent of the mill, was formerly with the International Falls Co. Now comes the good news that Thorold is to be the headquarters of all the work on section three of the new Welland ship canal, the contract for which was let last week to M. J. O'Brien and Hugh Doughney. The cost of section three will be approximately ten milliion dollars, and the contract calls for completion of operations by April, 1917. The contract for section one was let some time ago and that for section two will be awarded later. This section extends from the forth line of Grantham township to near Thorold the northerly boundary of number three section. The final contract on the Trent Valley waterway has just been let to the York Construction Co., of Toronto. It is known as the Severn River Section and the figure was $130,273.

Books for Paper Makers

THE PAPER MILL CHEMIST. By Henry P. Stevens, M.A., Ph.D., F.I.C. 12mo., cloth, 280 pages; 67 illustrations; 82 tables, and a cross index.
Part Contents:

Raw Materials and Detection of Adulterants. Properties and Analysis of Lime, Soda, Caustic Alkali, Mineral Acids, Bleach, Antichlors, Alum, Rosin and Rosin Size, Glue, Gelatin, Casein, Starch. Mineral Loading. Coloring Matters. Ammonia Solution. Copper Sulphate. Tannic Acid. Coal Tar Dyes. Fibrous Raw Materials -Half Stuffs and Their Treatment. Cellulose and the Isolation of Papermaking Fibres. Examination and Properties of Rags. Rag Boiling. Pulp Woods. Mechanical, Sulphite and Sulphate Pulps. Price $2.50 net.

A TEXT BOOK ON PAPERMAKING. By C. F. Cross and E. J. Bevan. Third Edition, revised and enlarged; 12mo, cloth, 419 pages, 98 illustrations and 2 large folding plates.
Part Contents:

Cellulose. Physical Structure of Fibres. Scheme for the Diagnosis and Chemical Analysis of Plant Substances. An Account of the Chemical and Physical Characteristics of the Principal Raw Materials, etc. Price $5.00 net.

THE TESTING OF WOOD PULP. By Sindall & Bacon. A Practical Handbook in Two Parts and an Appendix.

Part I, The Determination of Moisture in Pulp; Part II, The Bleaching Qualities of Pulp; Appendix, (1) Chemistry of Bleaching Powder, (2) Bleach Liquor, (3) Oxidation of Cellulose. Illustrated. Price $2.50 net.

PAPERMAKING. By Cross & Bevan. Third Edition. A standard Text Book written by scientific experts. Price $5.00 net.

RESEARCHES ON CELLULOSE. New Edition (1905-1910). By Cross & Bevan. Deals with the technical progress of cellulose of value to the practical paper maker. Price $2.50 net.

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PAPER MAKERS' POCKET BOOK. By James Beveridge. New edition, especially compiled for mill operatives, engineers, chemists and office officials. Price $3.50 net.

WOOD PULP AND ITS USES. By Cross & Sindall, with the collaboration of W. N. Bacon; 264 pages. It treats of the Structural Elements of Wood; Sources of Supply; the manufacture of Mechanical Wood Pulp; News and Printings; Wood Pulp Boards; Utilization of Wood Waste; Pulp Industries. Price $2.00 net.

BAMBOO FOR PAPERMAKING. By R. W. Sindall. Price 75c. net.

CHAPTERS ON PAPER MAKING. By Clayton Beadle. In 5 volumes. A series of lectures, to which are added Questions and Answers. Price, per volume, $2.00 net.

PAPER TECHNOLOGY. By R. W. Sindall, F.C.S. The book gives a birds-eye view of the subject of paper making, with full details on paper testing. Price $4.00 net.

CELLULOSE. By Cross & Bevan. An outline of the chemistry of the structural elements of plants. Price $4.00 net.

OUTLINES OF STATIONERY TESTING. By H. A. Bromley, presenting in concise and practical form the essential points of stationery testing. Price 75c net.

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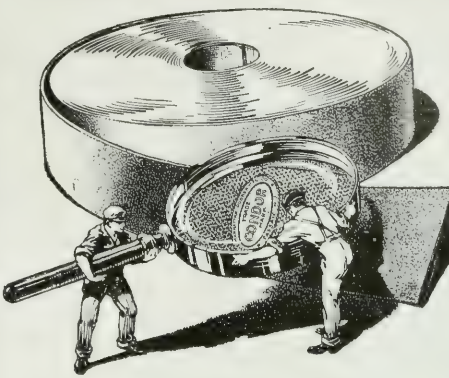

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TESTING SULPHITE LYE WITH IODINE.

When determining free and bound sulphurous acid in sulphite lye titration with iodine and soda lye is generally employed. This titration gives exact values if it is properly carried out. In practice, however, the exactness of the method has frequently been seriously endangered owing to its being simplified too much. The errors will now be pointed out and a sufficiently exact method described. The sources of error consist, on the one hand, in the great volatility of the free sulphurous acid, particularly when the lye is hot, and also in the reversability of the process on which the titration is based:

$$SO_2 + H_2O + 2J — 2HJ + SO_3.$$

The possibility of the process reversing diminishes more, it is true, the more the lye is diluted but appears to be able to exercise an influence even when dilute. If iodine solution is added to a concentrated SO_2 solution, the iodide of hydrogen can reduce sulphurous acid to free sulphur and in this manner prevent the process taking place smoothly according to the above formula; in the case of the concentrations here in question, however, this case can scarcely occur. The titration itself should take place as quickly as possible and without much stirring or shaking, because otherwise free SO_2 is evaporated To avoid this the iodine is not poured into the sulphite lye, but reversely the sulphite lye is run in a fine jet into the iodine solution, of which a predetermined quantity has previously been measured. The test is preferably performed as follows:

2 ccms. of the sulphite lye are measured exactly with a pipette and diluted in a small flask with 20 ccms. pure water likewise measured with a pipette. The mixture is put into a burette divided into 1-10 ccms., whose upper part is funnel-shaped. 10 ccms. n-8 iodine solution are then measured off in a small porcelain bowl and then sulphite lye is run in from the burette, whilst carefully stirring. The starch solution may be added only when the iodine has obtained a light yellow colour, because otherwise the starch is precipitated in flakes. Titration then takes place until the blue colour disappears. A few drops of phenolphthalein are then added and titration with n-8 soda lye takes place until the red colour first remains. For example, if 10.2 ccms. sulphite lye and 17.2 ccms. n-8 soda lye have been used, the number 10.2 is looked for in column I of the above table and the corresponding total amount of SO_2, here 4.32 per cent. is read in column II. In order to obtain the quantity of the free and bound SO_2 the row is followed up to the vertical column which has 17.2 above it, and the two numbers 3.10 and 1.22 are read, the former of which gives the free and the latter the bound SO_2 in per centages. In actual manufacture it is not necessary to know the quantity of CaO which is bound to sulphurous acid; the quantity can, however, be readily calculated by multiplying the quantity of bound SO_2 by $\frac{7}{8}$.

In many cases, particularly when cooking strong chemical pulp it may be advantageous, in addition to the ordinary test of precipitation of lime with ammonia, to determine towards the end of the cooking process the percentage of SO_2 in the lye with iodine solution. One must, however, be sure that the SO_2 concentration is less than in the fresh lye, that is larger quantities must be taken for the test and these must be diluted less. The organic substances in the lye may readily exercise a disturbing influence, but rapidly and correctly performed titration gives sufficiently accurate values. It if is washed exactly to determine the SO_2 in the lye at the end of the cooking, the following methods may be used.

According to Franke 100 ccms, lye are removed, mixed with a sugar-lime solution (lime-water saturated with sugar) until an alkaline reaction is obtained, whereupon the mixture is rapidly boiled and filtered. The precipitate is dissolved in hydrochloric acid, and water is added until 250 ccms. liquid is obtained, 25 ccms. of this solution are taken and titrated with n-10 iodine solution. The number of ccms. iodine solution used is multiplied by 1.053 and 0.032 in order to obtain the percentage of SO_2.

Stutzer recommends the following method: 250 ccms. water are put into an Erlenmeyer flask of 750 ccms. contents, the air expelled with carbonic acid and the flask heated. 25 ccms. sulphite lye and 25 ccms. 25% acetic acid are then added. The entire mixture is boiled for 15 minutes and the vapours collected in iodine solution. The calculation is made as usual.—Der Paper Fabrikant.

Granite press rolls will be placed on the 136 inch machine of the St. Lawrence Paper Mills at Mille Roches, Ont., and the 86 inch machine of the Don Valley Paper Co., Toronto, replacing chilled rolls. The new granite press rolls are being furnished by Bertrams. Limited, Sciennes, Edinburgh, through their Canadian representative, James L. Chambers.

MILL FOR SALE.

The undersigned, on behalf of the receiver appointed by the trustees of the debenture holders of the Western Paper Mills, Limited, hereby gives notice that tenders will be received up to and including the fifteenth day of October, 1913, for the purchase of the said company's premises, plant and undertaking, consisting of a fully equipped paper mill in running order, operating an eighty-four inch four-cylinder machine, situated on the line of the Great Northern Railway near Vancouver, B.C. The mill has been in operation fourteen months making board, sheathing and wrapping papers. The highest or any tender not necessarily accepted. For further particulars and conditions of sale, apply to James F. Garvin, care British American Trust Company, Limited, 198 Hastings Street West, Vancouver, B.C.

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RETALIATION GONE

It is with marked pleasure that we record our compliments to the broader and saner views of American business men in eliminating from the Tariff Bill the retaliatory clauses aimed at Canada. As we have frequently urged and pointed out, this was a most short sighted and unfriendly policy toward a country whose business relations with the United States have not only been pleasant, but profitable to both concerned. Our country needs a great deal in the line of manufactures which we cannot produce for some time. The natural place to buy these is in the United States as has been proven in spite of tariffs which gave the preference to England. In the discussion of this matter; Senator Hughes of New Jersey, speaking on paragraphs No. 330 and No. 651, brought out some very interesting points on the matter of retaliation, which we cannot do better than to quote:

> "All the burdens of these retaliations must be borne by the American newspaper publishers who, in 1912, paid indirectly a penalty of more than $3,000,000 in addition to the amount of retaliatory duties paid directly.
>
> "Our stores of pulp wood outside of the State of Maine have been substantially exhausted. The Sub-Committee believes that as the duties on manufactured paper have been lowered by the proposed Bill, the duties on mechanical and chemical wood pulp entering into this paper should be removed, in order that the American news print paper makers may be better equipped for competition. During the last fiscal year, 1912-13, the American paper makers paid $29,520,000 for pulp wood and wood pulps from abroad to make their paper. These figures were approximately as follows:

Pulp wood from Canada, 1,036,000 cords	$ 6,954,952.00
Transportation of wood, $3.50 per cord	3,626,000.00
Mechanical wood pulp from Canada, 173,000 tons delivered at $20 per ton.	3,460,000.00
Chemical wood pulp from Canada, 45,000 tons, at $40 per ton	1,800,000.00
Total from Canada	$15,840,952.00
Chemical pulps for elsewhere, 342,000 tons, at $40 per ton	13,680,000.00
	$29,520,952.00

> "The Senator from Massachusetts is proposing that we try to force terms from a customer ranking next to the United Kingdom in value of goods bought from us. The Dominion of Canada has doubled its purchases from us within three years. Its gain last year over the previous year was $86,000,000 a larger increase than in any earlier year. Canada paid us last year over $415,000,000 for materials, as compared with $216,000,000 in 1910. It bought from the United States 63 per cent. of all the materials it imported, taking only 37 per cent. of its importations from the rest of the word. It sold us $120,000,000 of materials. Why should we attempt to provoke reprisals from a customer whose trade interchanges with us exceed $535,000,000 per annum? Why punish our own consumers in order that we may make a futile effort to continue a policy that has failed after a test of 16 years? If, as is not at all probable, Canada should resent the retaliatory policy proposed by the senior Senator from Massachusetts and should cut off all our supplies of wood and pulps, amounting to 30 per cent. of all the raw material of our paper manufacture, the paper industry of the United States would be prostrated. The owners of 52 paper mills are inviting this sort of warfare because they pass the burden of its cost along to the consumers who are helpless. The price of a newspaper is fixed like that of a postage stamp, so that

22,000 publishers who use the paper cannot pass it along to the reader. They must carry that burden.

"Canada cut last year 1,800,000 cords of pulp wood of which the United States took 1,036,000 cords as pulp wood and 427,000 cords as pulp, a total of 1,463,000 cords, or 80 per cent. of Canada's entire cut, leaving only 20 per cent. of that cut for its own paper consumption and for its exportation of pulp and paper to other countries.

"The entire area of Quebec's pulp wood supply is 208,000 square miles, of which 200,000 square miles is Crown land or restricted land, and 8,000 square miles or 4 per cent. of the area has freehold wood which may now enter the United States without restirction. Because of that limited area of freehold wood, and addition of from $2 to $3 per cord has been made within two years to the price which American paper makers must pay for Canadian freehold wood. At the present rate of consumption by American paper makers that supply from Canadian freehold land will soon be exhausted, and as the supply diminishes there will be corresponding increases every year in the cost of that wood.

"The senior Senator from Massachusetts proposes that we tax all wood pulp produced from Crown lands of the Canadian provinces. It is obvious that our spruce forests are nearing depletion and that our water powers, which would be necessary for grinding wood into pulp cheaply, are more profitable employed in other industrial ventures. Our paper mills must buy their raw materials of pulp and wood from Canada regardless of restrictions. The fact that $278,186 was paid last year in retaliatory duties because the wood and pulp could not be obtained otherwise emphasies the fact of our absolute dependence upon Canadian forests and upon Canadian water powers. The retaliatory duties iucreased the cost of materials used by the American paper maker and the consumers paid for it when the pulp was converted into paper.

"The American print paper maker needs no protection. His labor cost is no greater than that of Canada. He has advantages in supplies and transportation which offset Canada's advantages on wood. The figures for each of the six years ending June 30, 1912, show that the American mills exported more than they imported. **We sold more paper of all kinds to Canada than we bought from it.** The figures for the fiscal year 1913 show an increase of importations from Canada because the American paper makers have refused to meet the increased demand of consumers. In the year 1911 they did not build a single paper machine, though the consumption in the United States shows an average increase of over 90,000 tons of newspaper print per annum. The largest paper maker, the International Paper Company, has built only two new paper machines in 15 years.

The general effect of retaliation in any form is always in the end adverse to the interest starting it. There is no doubt that business conditions in both countries will be much better by having no objections or joker clauses, retaliatory provisuions and other objections, which in the long run do more harm than good. We venture to think that the American paper industry will not suffer as they fear, but will find conditions adjusting themselves very rapidly to normal conditions on a satisfactory basis.

LABOR ORGANIZER AT OTTAWA

In another column of this issue we print a despatch from our correspondent at Ottawa to the effect that the United States Labor Union organizer, Robert J. Dixon, is in Ottawa stirring up trouble. It is proposed to organize unions among the paper mill employees in that district. This is a gross injustice to Canadian industrial life, for, while we heartily agree that labor conditions should be satisfactory to employer and employee, it is a discouraging fact to see an agitator come from the United States to try and make trouble among Canadian conditions. A fair example of the results which this method leads to has been seen in the recent coal strike on Vancouver Island, which was precipitated, organized and financed by the International Workers of the World from the United States. Yankee demagogues should keep on their own side of the line. Canadian labor does not need any of their wonderful brains in organizing or trouble starting. They are out of sympathy with Canadian development, having no interest in seeing our country progress, and are only agitators trying to justify the heavy taxes being levied on the men to support them in fine office suites in head quarters, from where without any knowledge of outside conditions they dictate labor disputes, agitate strikes and bring suffering and hardships on both mill and men. Doubtless, there are throughout Canada some labor conditions which might be improved, but we are equally sure that Canadian labor is thoroughly competent to adjust its own difficulties, which will receive more attention coming from themselves than from some outside agitator, who should be called a professional trouble maker. The United States has many things in the industrial life to be proud of but much of it is shadowed by the awful records of labor union scandal. We do not want a duplicate of this in Canada.

IMPERIAL BOARD OF TRADE

It is foreshadowed, as a result of the visit to the Dominions of the Royal Commission appointed to enquire into and report as to the best means of extending the trade between the several Dominions and the Mother country, that a recommendation will be made for the establishment of an Imperial Board of Trade.

There are certain subjects connected with the Home Country and the Dominions which require to be studied collectively, and from the Imperial point of view, and this can be best accomplished by an Imperial Department acting in concert with the Dominions, probably by branches established in the principal cities. The people of the United Kingdom require to have ome official organization to represent their special interests in the Overseas Dominions, so that the general Imperial interest, which affect all in common, may be accurately guaged by representatives on the spot.

The appointment of Trade Commissioners by the Government in Canada and Newfoundland, the Commonwealth of Australia, New Zealand and South Africa, is a feeble admission that it should form a part of the duty of the State to organize a department which should be available to traders desirous of general information, and to lend their assistance in the general advancement of trade. With this object in view, some efforts are being made to distribute British manufacturers' catalogues and to bring buyers in distant parts in touch with manufacturers at home. The phrase "in touch," however, is an exceedingly shadowy one, so far as any real business contact is developed by the present imperfect system If it be considered a legitimate function of the State to assist the development of Trade, it is clear that the most perfect means should be adopted for the purpose, and the establishment of an Imperial Board of Trade controlled by practical business men, with branches in the most important cities of the Overseas Dominions, could no doubt be organized to link up and facilitate the flow of commerce between the various sections of the Empire.

PAPER STOCKS

On the various Canadian stock exchanges the features of the last week have probably been the stocks of paper companies. Two notable examples have called a great deal of attention to paper mill investment and have instigated many inquiries. The sudden drop of some stocks from fairly high to very low points has had a remarkable effect on those interested in paper mill investments. This type of investment has long been looked on by people both in and outside of Canada as the choice investment in this country. Fewer failures have been recorded in this line than in any other industrial enterprise. On this account, promoters of paper mills have enjoyed all the good things the stock markets of the country had to offer. As is usually the case when such conditions continue, a number of interests are bound to overdo and play upon the name of the investment. There is no reason why any paper mill operated on a fairly modern basis should not show good returns at the present time on actual capital invested. The difficulty semes to be that in the numerous transfer and financial schemes, the capital of the company has suffered so that it is very difficult for the mill itself to show an earning on the capitalization. Anything which encourages money to look askance in the investment in paper mills is something which all should unite to suppress. Many think that we have experienced a little too rapid development in pulp and paper and that if for a few years the investments in these lines could be halted even by scare methods, it would be better for the industry as a whole. This, we cannot agree with except in one or two particular lines. In general there are wonderful opportunites in this country for very large returns from paper mill investments. To all acquainted with Canadian conditions the black eye which has come in a financial way to our industry will have no effect. The tightness of money and the general dullness of financial conditions has served to show that in the long run the only satisfactory promotion methods are those which are conservative and absolutely sure.

BLOWING THE GAS IN SULPHITE DIGESTERS

There has been of late considerable discussion in Europe among pulp and paper technical men on the question of discharge of the gases in sulphite digestion. Up to date, it has been the general rule to allow the air to escape as soon as the contents of the digester reached the temperature of 110 degrees C. If the air is not let off the oxygen gradually lessens until it reaches zero. This is used up probably by the lignin. Free sulphurous acid is not given off when steam is introduced until a temperature of 70 degrees C. There is no doubt that in blowing off, only a portion of the air contained in the digester escapes in the form of gas, this portion being the nitrogen while the oxygen is combined with organic materials. It is impossible to discharge the air from the digester and from the wood by blowing off at 10 degrees C. No oxygen escapes and yet SO_3 shows an increase. The chief advantage is that the wood is better impregnated with the lye. This can usually be seen by making a cook without blowing off, when it is found that the inside of many of the chips are raw. A far better way to force the air out is to leave the digester open until a temperature of 70 degrees is reached, then the air in the wood is not subject to the counter pressure of the SO_2 and can easily escape. Gas ejected at 70 degrees carries with it much oxygen, while that at 110° has practically none. There seems to be promise in the idea of cooking by this method and many agree that the oxygen is not materially influenced from the formation of SO_3. The advantages of discharging the air from the digester is not to prevent this formation, but simply to get a better penetration.

EDITORIAL COMMENT.

The meeting of the Canadian Manufacturers' Association in Halifax elected Mr. C. B. Gordon of Montreal, as its president. Mr Gordon is one of the young and leading business men in this country, and brings to all his interests a breadth of view and a vitality of interest most wholesome for all enterprises fortunate enough to come under his direction. We predict great things for the Manufacturers' Association and, since Mr. Gordon is closely interested in one of our largest Canadian paper mills, there is no doubt that that Association will give more attention to paper manufacturers. The Canadian Pulp and Paper Association will doubtless find co-operation with the Canadian Manufacturers' Association extremely beneficial to both concerned. It gives us great pleasure to see the destinies of the Manufacturers' Association in such able hands.

HAVE SPANISH RIVER STOCK BEEN OVERESTIMATED.

The Financial Post Analyses Assets and Securities of the Three Companies Comprising the Recent Combination—Bonded and Capital Indebtedness Greatly increased by Amalgamation, but Estimated Outturn and Prospective Profits Sufficient to provide Small Dividend for Common Stock.

Under the heading, "Have Spanish River Stocks been Overestimated?" the Financial Post, goes into the question very thoroughly in view of the heavy decline in Spanish River stocks following the news of the amalgamation with teh Lake Superior Paper Company. The Post concludes with this statement:

"Whether or not $10 a ton is a fair estimate of profits in this business, the fact remains that the recent merger has had the effect of placing the common stock of the company in a weaker position than before the merger. According to the estimates of the promoters, the total output of the new company has been exactly doubled by means of the Lake Superior mills. At the same time, however, the bond interest has been increased 120 per cent., and the common stock outstanding has been increased 260 per cent. Therefore, profits will have to be considerably more than doubled to place the original Spanish River securities in the position they previously occupied, unless some greater economies can be effected, or market advantages secured by joint control of the merged plants."

In view of the fact that the company's annual statement is expected daily, the Post makes an estimate of the financial position of the company from the reorganization in 1910. The physical assets of Spanish River were then appraised at $2,489,684 in addition to the pulp wood limits, which were placed at $10,000,000. Later, the properties of the Ontario Pulp and Paper Company were taken over, the appraised value of which, exclusive of timber rights, was $1,000,000 These assets consisted of a sulphite plant, with a capacity of 18,000 tons; a ground wood mill, with a capacity of 18,000 tons, which, however, was not to be ready for operations until 1913, and a paper mill of 15,000 tons capacity. In addition, water power developments and real estate were set down at $1,100,000, and proceeds of bonds to the extent of $400,000 for extensions, which brought the estimated value of the assets assumed by the Spanish River Company to $2,500,000. There was also an estimated asset of 10,000,000 to 13,000,000 cords of pulp wood on the Sturgeon River.

As regards the Lake Superior Paper Company, the assets were valued in 1911 at $3,780,000, exclusive of the contract to cut timber on some 2,500 square miles of the property of the Algoma Central Railway, which was supposed to be worth $3,200,000. These physical assets consisted of the following properties:

Ground wood mill	$ 960,000
Sulphite mill	770,000
Freehold property and buildings	150,000
Paper mill, four machines	1,100,000
Cash working capital	800,000

At that time the bonds outstanding amounted to $3,500,000 and supposing the assets were increased by the full amount of the $1,500,000 issued since, the fixed assets would at present be worth $4,580,000 at the outside.

Since 1910 securities of the Spanish River Company were issued to the extent of $3,000,000. On a liberal estimate the assets of the company at the time of the recent merger were worth $5,489,000. Adding to this sum the $2,500,000 of Ontario Pulp and Paper assets and the Lake Superior assets, the total is about twelve and a half millions. In addition to this there is standing timber as follows:

Spanish River, cords	12,000,000
Ontario pulp, cords (say)	10,000,000
Lake Superior, acres	1,655,000
Total value	$18,200,000

"When the Lake Superior bonds were issued in 1911, the capacity output of print paper of that company was estimated at 54,000 tons per annum on the completion of plans. At $11.46 profits per ton the earnings of the company were placed at $618,840. Similarly at the time of the Spanish River issue, profits of that company were estimated at $450,000, and those of the Ontario Pulp and Paper Company at $200,000. Thus the total earnings of these companies as estimated in the various prospectuses issued should be $1,268,840 when the plants are working at capacity rate. It seems that these estimates have been too conservative in the light of later developments as the latest official estimate of output places 140,000 tons as the capacity. At $10 a ton the profits should therefore be $1,400,000.

"The sinking fund for the various issues amounts to about $220,000, leaving $1,180,000 available for depreciation, bond interest and dividends. There would therefore be sufficient to pay bond interest and preferred dividends and leave a balance of about 2 per cent. of the common stock outstanding."

The Post emphasizes the point that the profits will have to be considerably more than doubled to give the Spanish River securities their former standing in the market.

RICE, BARTON & FALES.

The Office of the Pulp & Paper Magazine is in receipt of handsome leather bound copies of an elaborate series of photographs of Pulp & Paper Mill Machinery supplied by Rice, Barton & Fales Machine and Iron Co. Worcester, Mass. The book includes a large number of actual photographs 6" x 8" of installations of various paper machines and accessories. The binding is handsome and the entire work does great credit to the firm. It is such a tastefully gotten up affair that we have placed a copy, on our reading desk in both the Toronto and Montreal Offices where our visitors will do well to look it over.

POWER CONSUMPTION WHEN BEATING HALF AND WHOLE STUFFS

By ARNOLD REHN

The following article is the result of elaborate experiments and investigations by the author in Germany. He recently published a few observations on beating which were of a very high order; on this account he has been invited to give the readers of the Pulp and Paper Magazine three articles on results of his work which has been most valuable.

THE various articles on the theory and practice of beating published in recent years both in English and German periodicals havecertainly been of great interest to all paper makers. The subject of power consumption in the beating of paper pulp has been greatly neglected, as the necessary practical tests could only be carried out under remarkably favorable conditions. The erection of a new beater plant in the paper mill of Marggraff and Engel in Wolfswinkel, in which the individual electric drive has been provided, made it possible for me, with the aid of automatic recording dynamometers, to carry out a number of tests calculated to give valuable data in regard to power consumption. A number of diagrams were also made showing the power consumption when breaking in various kinds of rags, and a number of various stuffs in the beater. It was not possible, however, to separate the various kinds of fibre stuff in the latter process so that I am not able to give the cost of beating, say, 100 kgs. of sulphite and Mitscherlich cellulose or straw pulp to whole stuff. This was impossible on account of the working conditions and it was only possible to give the cost of breaking in various rag stuffs. The data with regard to the power consumption for beating individual stuffs would also vary very considerably, as everything depends upon the kind of beating which is required for producing a certain quality of paper. I have therefore made a point of giving a number of diagrams made when beating standard sorts of paper such as are usual in Germany, as well as the material of the charge, as from these one can easily form an idea as to the requirements for other kinds of papers. Figures were also found showing the power consumption required for preparing the stuff in the edge-runner or in the kneader. At this point I must take the opportunity of thanking Mr. Kommerzienrat Marggraff for allowing me to publish the diagrams made in his works and thus placing the interesting data obtained in these works at the disposal of a large circle of other paper makers.

In order to facilitate comparison I give an exact description of the breaker, and later also of the beating engine with which the experiments were carried out. It will be seen that the engines in question are of up-to-date construction, so that the values found may be said to represent average requirements. It was not possible to make a comparison of the power consumption of beating engines of various construction in a similar manner to Beadle's researches, as the type of beating engines described below were the only ones at my disposal. The aim was therefore not to find out to what extent the construction of the beater influenced the power consumption, but to treat the subject from a paper-technical standpoint. Nevertheless, attention will be drawn to all improvements in the construction of the beating machines which favorably influences the power consumption. The results obtained will show the reader that many factors entered into the question of power consumption, and as the beating plant requires the most power in all paper works, economies made here without lowering the quality of the paper are of very great importance.

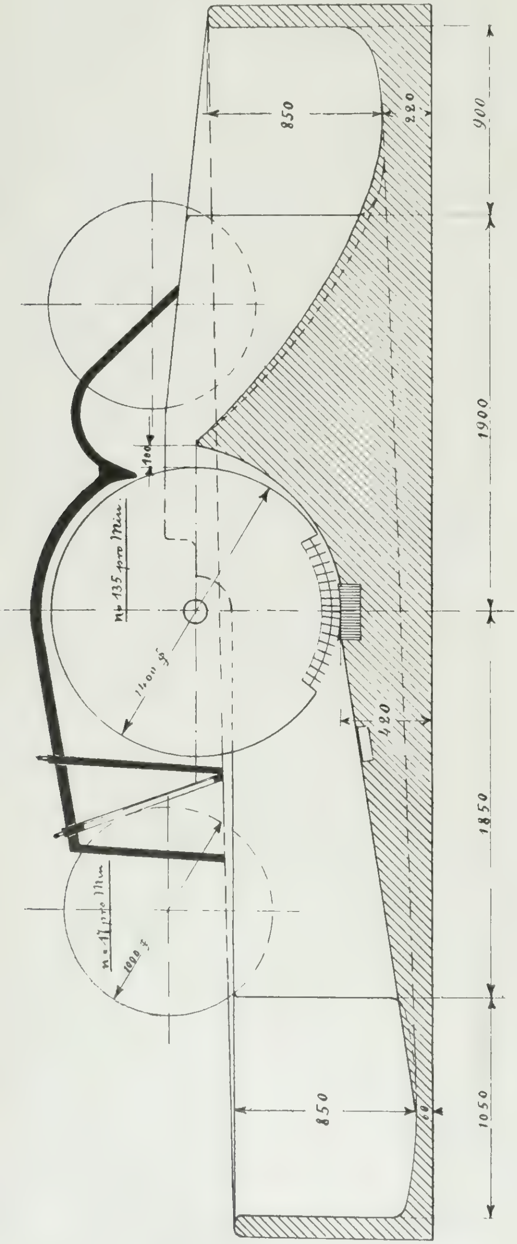
Professor Kirchner, in his well-known work, "Paper," refers to my researches under whole stuffs in volume 4 (this work appears in Germany as a supplement to "Wochenblatt fur Papierfabrikation"). Kirchner compliments my work by valuable theoretic calculations and, giving his permission, places me in a position to give the readers of this paper, together with my researches, Kirchner's theoretic calculations and conclusions, thus rendering the subject much more intelligible. Figure 1 shows the breaker. The cement concrete trough has a total length of 5,700 mm and an inside width of 2,450 mm. The sole is slightly depressed in the middle and the corners rounded off and has an inclination of 160 mm on the washing drum side of the trough which is 4,725 mm in length, i.e., an angle of inclination of 2°. From the lowest point of the bottom of the trough to the bed-plate knives, or the lowest point of the roll knives, the stuff has to rise 360 mm within a distance of 2,400 mm, which results in an angle of inclination of 8½°. The crown of the backfall is situated at the same height as the centre of the axle of the roll. The roll, which, together with the shaft, weighs 3,000 kgs is 1,400 mm in diameter, 1,200 mm in width and makes 135 revolutions per minute, i.e., 9.9 meters circumferential velocity. The 78 straight steel roll knives of 10 mm thickness have a sharp 2 mm feathered edge. The 44 bed-plate knives correspond with 22 steel roll knives and are situated exactly under the centre of the axle of the roll; they are 5 mm in thickness, have no feathered edge and are mounted oblique to the roll knives.

In the rising sole of the trough in front of the bed-plate is a narrow sand-trap. The cover of the roll is provided with a washing screen which is only used at the commencement of the breaking process, that is, during the actual period of washing. As a result of the peculiar form of the cover shown in the drawing, a doctor-like edge is formed in close proximity to the periphery of the roll. This prevents any stuff being carried back by the roll.

Two washing drums of 1,000 mm diameter and about 1,050 mm in width are erected in the open canal of the trough and make 17 revolutions per minute, i.e., 50.89 meters circumferential velocity.

The pulley, which is mounted on the unsupported end of the shaft, weighs 440 kgs.

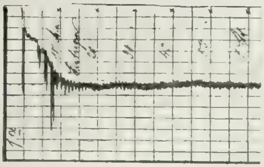
Kirchner has calculated that the maximum pressure in this breaker when the roll completely rests upon the bed-plate, amounts to 2,475 kgs. When distributed over the whole of the surface of contact this results in a maximum pressure of 40–50 kgs per sq. cm, according to the position of the roll, and it is possible for four or five of the knives to rest upon the 240 mm wide bed-plate at one time. Kirchner stated that the surface pressure per square cm was twice this amount; but this is an error, as he by mistake reckoned only 22 knives for the bed-plate, instead of the number given above. On the other hand, Kirchner rightly observes that the surface pressure, and, as a result, the beating of the engine, must change with the condition of wear of the roll knives, as on account of the latter being provided with feathered edge, the sharpness of the same decreases and the pressure is correspondingly reduced, whilst the cutting length of the knives remains constant. For the sake of uniformity in beating the knives of the breaker are therefore not provided with a feathered edge, although those provided with feathered edges are not so liable to suffer from the severe shocks which occur in the breaker, as in the case of half stuff it is not possible to use very strong roll knives on account of the very great shortening of fibre which is necessary.



The method of treating the fibre in the breaker, and consequently also the output, varies very considerably and will seldom be found the same in any two works. Further it depends upon the fact of whether rags have already been washed in the digester or in a special washing engine or not. In No. 1 of this year's "Paper Maker" Beadle refers to my trial, and believes that the contradictions which frequently occur between his and my results are only apparent, as the conditions in both cases vary considerably. I shall have to return to Beadle's statements several times later on, and for the present will only mention that Beadle believes that the method of washing has a great influence upon the softness of the material, and consequently also upon the power consumption. My opinion is that this makes very little difference, and I would only point out that in the case of the rags which have been treated in the digester or in a special washing engine, the work of washing and consequently the power consumption of the breaker is considerably reduced and therefore it was necessary to have particulars regarding the preliminary treatment of the materials used in my trials.

Further, it is important to know to what kind of paper the rags are to be worked, as upon this depends the length to which the fibre is to be shortened in the breaker; if, for instance, it is required to produce a paper of exceptional strength, it will be advisable not to continue the breaking in too long in order to obtain the necessary greasiness of the stuff in the beating engine, without making the fibres of the stuff too short. If, however, the rags are to be worked up into printing or other paper of less strength, it will be advisable to continue the shortening of the fibre in the breaker and, as I have considerable reasons for believing, this would greatly reduce the expense for power. I am not able to give actual figures with regard to the variation in power consumption here, as in order to do that a number of new experiments concerning the greasiness of the finished whole stuff and the strength of the paper produced would be necessary. To do this it would be absolutely necessary to treat both sorts (the half stuff with longer and shorter fibres) in an identical manner in the beating engine, without an admixture of any other stuffs, a thing which would be very difficult to do in practical working, and would be best done in a trial engine, which I regret not to have at my disposal. These lines however, may be the cause of such trials being carried out in works in which the conditions are more favorable.

It is naturally of great importance in making comparisons when making diagrams to know exactly what kind of rags come under consideration. Beadle was of the opinion that new material was necessary for his trials. I do not quite agree with Beadle in this respect, as in the first case new materials are only used in very few works, and secondly as even in new materials great differences exist in the strength of the fibre as well as in the greasiness of the texture. Our plan of rag sorting on the other hand will be found to be accurate enough to give a fairly clear idea of the materials employed, and furthermore I have given detailed particulars of these materials. Referring to my above remarks, I also beg to point out that the half stuff was only employed for strong papers, principally for standard papers, and the shortening of fibre in the breaker was therefore not continued beyond a certain point. I found an average length of fibre of the half stuff to be 18 mm in the case of linen, and 15 mm in the case of cotton. The rags were in every case previously washed in hot water. Each diagram shows quite clearly the length of the washing process in the engine as this process was for the greater part finished at the commencement of the breaking process. Those who wish to make comparisons with their own works only require to add the cost of power which would occur in the case of the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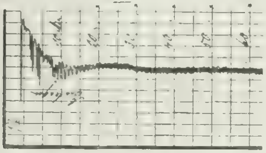

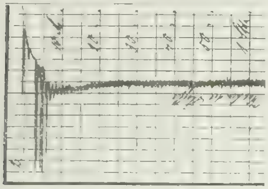
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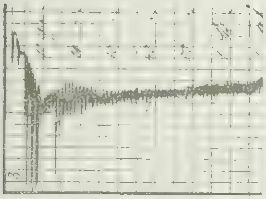
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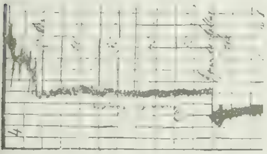
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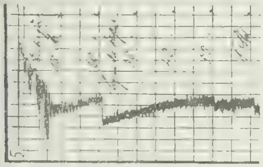
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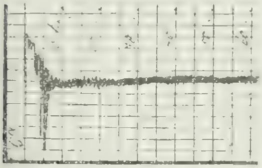

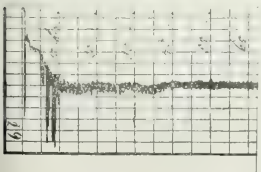
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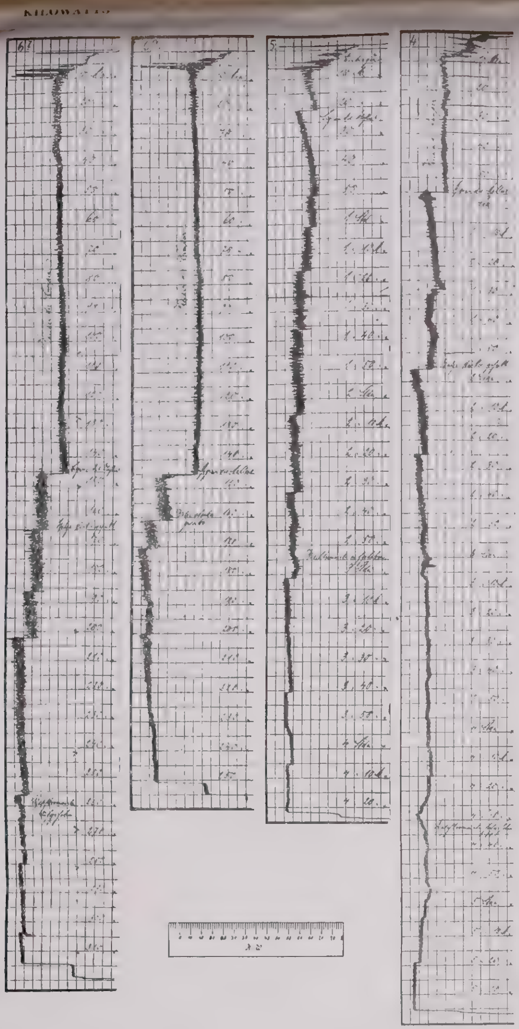

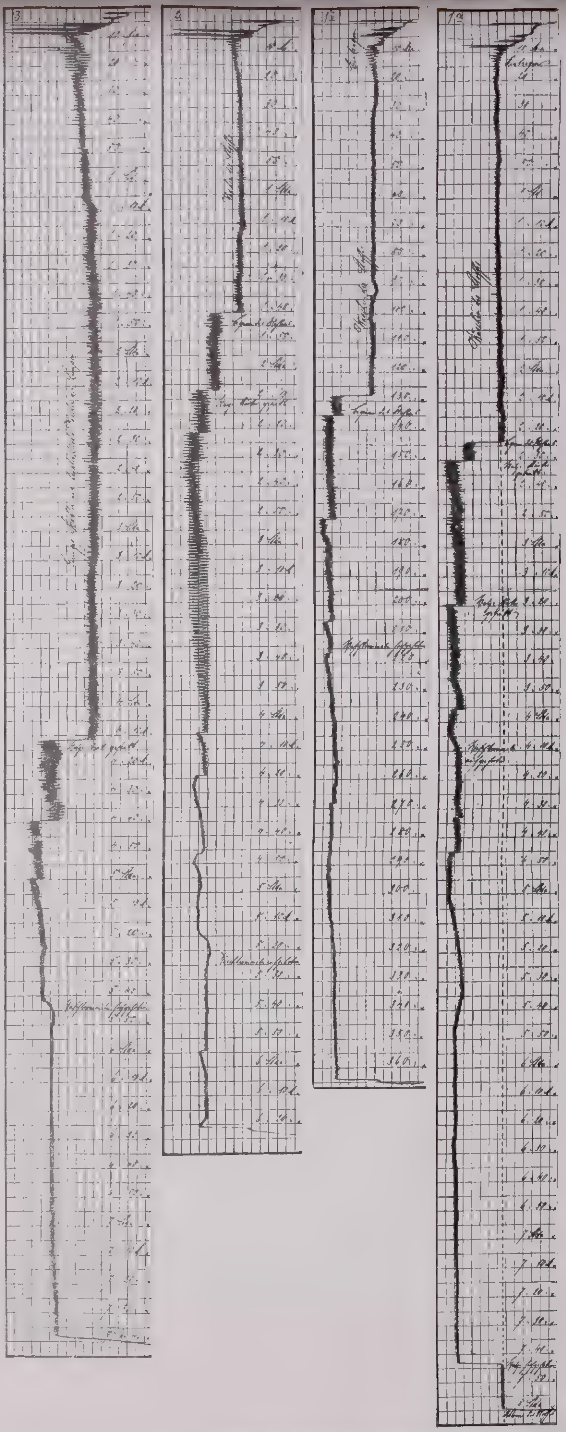

Dynanometer Diagram

By ARNOLD REHN

Power Consumption when Beating Half and Whole Stuffs.

The various rags employed had the following [illegible]

1a and 1b. Pieces of canvas. Very strong, [illegible]ably clean and free from refuse, and obtained from canvas. 1a engine charged with 450 kg., 1b with 350 kg.

2. Coarse sacking b. Very strong, tolerably clean, sacking free from refuse.

3. Cotton trimmings. Seams from cotton rags, strong but very dirty.

4. Dirty line 1. Soft linen derived from canvas and sacking, dirty and not very strong.

5. White hose. Very clean and strong material, so-called English leather.

6a and 6b. Medium colored cotton. Medium strength, dirty, cotton stuffs. 6a lowering the roll slowly, 6b lowering quickly.

washing process being carried on for a greater length of time. The power required to run the breaker empty was 4½ kilowatts. For running the same empty and circulating the pulp 26 to 27 kilowatts were required, when the charge was thick, and when the charge was thin, as for instance in diagram 1b, only 23 to 25 kw. In diagram 1a I have drawn a second dotted zero line, form which it is possible to ascertain immediately the power which was required for breaking. In this engine the rolls were adjusted to the same height after the beating which they had when charging and during the washing and from this it will be seen that the requisite power consumption for the circulation remains fairly constant during the treatment; the 2½ kw required for working the washing drums at the commencement must, of course, be taken into consideration and subtracted. This would mean that 28—2½ =25½ kw hours remain for empty running and circulation at the comencement, with about 26 kw at the the end of the breaking process. One should not forget that the swelling of the rags caused an absolutely gradual reduction on the speed of the circulation of the stuff,which amounted to 12.5 meters per minute (average of outer and inner circulation) at the commencement and 7.5 meters at the finish, i.e., a reduction of 5 meters. Later on I shall return to the power consumption during the circulation, and publish the results of a number of trials which I have and carried out on this subject. As already mentioned the power for both the washing drums at the beginning of the washing was 2½ kw, and towards the end as much as 3½ kw, i.e., an average of 3 kw. The power consumption at any stage of the beating may be reckoned by counting the number of squares from the zero line up to the line indicated, and multiplying this by 4. The actual beating work, including the friction of the knives, will be found by subtracting the power required for running the engine empty and circulating the pulp. In those cases where the recording line fluctuates considerably, as a result of the shock when breaking up, which always happens at the commencement of the breaking process, the average of the measurements must be taken; thus, for example, in diagram 1a the power consumption after 6 hours is 12 x 4 = 48 kw, of which 28 kw are to be attributed to running the engine empty and moving the pulp. To simplify the process I furthermore give a power measurement scale, which enables the power consumption to be immediately read off in kilowatts.

In diagram 1a it will be seen that the charging occupied 10 minutes. It should be noticed what enormous momentary resistances have to be overcome during this period, and what demands are made upon the apparatus (belt pulley, roll axle and knive material) as well as upon the driving motors. Momentary outputs of from 50 up to more than 90 H.P. have been recorded. For 2 hours 25 minutes only washing took place, then the roll was lowered by degrees and reached its lowest position after 5 hours 45 minutes. In spite of the proximity of the roll to the bed-plate, the power consumption during the second half of the breaking process is no greater, and sometimes even less, than at the beginning. This is caused by the disaggregation of the rags taking place first, for which a large amount of power is requisite, and furthermore because, by the washing drums being cut out of the process after the washing is completed, about 3½ kw are saved. This falling off in power consumption is clearly seen in diagram 1a at the end of 4 hours 5 minutes when the washing drums were raised. At each downward movement of the roll an immediate increase in power consumption can be seen in the diagram, but when breaking is continued it gradually diminishes—contrary to Beadle's observations—until it again shows a certain increase when the roll is again lowered. Thus the power consumption after 2 hours 30 minutes, when the roll was lowered, amounts to 51 kw; it diminishes until 3 hours 20 minutes, that is, in 50 minutes, during which time the roll was not adjusted, to 46 kw, i.e., a decrease of 5 kw. The longer the beating is continued the steadier is the power consumption, the decrease amounted, for instance, in the latter 50 minutes of the operation, that is, from 6 hours 50 minutes to 7 hours 40 minutes, to only about 1 kw. The progress of the disintegration is clearly shown by the recording line gradually becoming straight; the frequent fluctuations observed at the beginning of the breaking process, and often amounting to 6 to 8 kw difference in power consumption within a few seconds, occur with less frequency. The method of working is so clearly shown in each diagram that further explanation is unnecessary.

I have carefully calculated the total power consumption shown in each diagram, and reproduce here same. The weight of the dry contents of each engine was determined by accurately weighing the rags when charging the digester, and dividing them into three or four equal parts after being boiled. The various rags employed had the following properties:—

1a and 1b pieces of canvas, very strong linen, tolerably clean and free from refuse, obtained from canvas. In dia

TABLE I.

			Time in minutes.				Power consumption in kilowatt hours.							
Diagram No.	Kind of rags.	Charge in kgs.	Required for charging and for principally for washing	For beating.	For whole process.	For idle running.	For circulation of stuff and average power in Kws required for same.		For working the washing drums, and time the latter were worked.		For pulping and breaking process.	Total power consumption.	For 100 kgs. rags unboiled weight.	Remarks.
								Kw.		Min.				
1a	Canvas.......	450	145	320	465	35	167	21.1	12	245	112	326	72.5	Thick charge
1b	Canvas..........	350	130	230	360	27	108	18	10	210	89.6	233.6	67	Thin charge
2	Coarse Sacking.........	320	100	280	380	29	127	20	16	315	70	242	75.6	
3	Cotton Trimmings......	380	250	210	460	35	161	21	17	345	83	296	78	
4	Dirty Linen.........	360	55	280	335	25	117	21	14	275	62	218	60.6	
5	White Trousers......	330	0	260	260	20	82	19	12	235	46	160	48.5	
6a	Medium coloured cotton	330	145	170	315	24	100	19	13	260	59	196	59.4	Gradual beating
6b		330	145	105	250	19	79	19	12.5	250	37.5	148	44.8	Sharp beating

gram 1a engine was charged with 450 kgs and 1b with 350 kgs.

2. Coarse sacking b. From strong tolerably clean sacking free from refuse.

3. Cotton trimmings. Seams from cotton rags, strong but very dirty.

4. Dirty linen 1. Soft linen from canvas and sacking, dirty but very strong.

5. White trousers, very clean and strong material, so-called English leather.

6a and 6b. Medium colored cotton. Medium strength, dirty, cotton stuffs. In 6a the roll was gradually lowered; in 6b lowered quickly.

In No. 5, white trousers, breaking was at once commenced as the material was very clean and the necessary washing could take place in the washing drums during the breaking process. I had two diagrams each made of the pieces of canvas and the medium colored cotton, as I was particularly anxious to show, in the first place, the influence of the thick and thin charges on the power consumption, whilst in the latter I wanted to show the effect the treatment had upon the power consumption in the beating engine, firstly by gradually lowering the roll and secondly by sharp breaking in from the commencement. I shall return to this subject again. In No. 4, dirty linen 1, it should be remarked that the time devoted solely to washing appears to be very short. This is because the dirt firmly adheres in these rags and can only be entirely removed by gradual disaggregation. For the same reasons the breaking and the washing operations of the cotton trimmings were carried out concurrently.

In the above table 1 the most important particulars shown in the diagrams are summarised. I have drawn up this table in order to divide up the total power consumption as far as possible with a view to obtaining a clear idea of the individual work done in the engines. The figures which we found as power consumption for the disaggregation and beating, naturally do not represent the actual power required, as they contain the friction occurring between the bed-plate knives and the roll knives, which could not be separately ascertained. Trials intended to make this possible will be described later. The last column gives the power consumption calculated in kw for 100 kw of unboiled rags. If it is desired to ascertain the power expenditure for 100 kgs of half stuff, the loss when boiling, washing and bleaching, must of course be taken into account. Supposing that these losses amount to 40% in the case of pieces of canvas, 166 kgs of unboiled rags would be necessary for the 100 kgs of half stuff, the breaking in of which would require 120 kwh.

Table 2 for the greater part contains the same details as table 1, calculated, however, at the rate of 100 kgs of rags (unboiled). The power consumption for the work done was also reckoned in percentages of the total power consumption. It will be seen that the power required for running empty, as well as for the circulation of the various sorts, is fairly constant; it amounts to about 12 kwh for the former, and about 52 kwh for the latter. On the other hand the power required for breaking in fluctuates considerably, i.e., from 25.4 kwh when treating pieces of canvas down to only 11.2 kwh for cotton.

In table 3 the empty running and the work of circulation has been divided for the washing and beating processes. The principle followed was that the power for empty running and circulation, during the time in which washing was solely taking place, was reckoned to the washing process, whilst the time from the commencement of beating to the raising of the washing drums i.e., in which the washing and beating were carried on concurrently, was equally divided between the washing and the beating processes, and the remainder reckoned to the beating process alone. The percentages which the washing and beating processes have to bear of the empty running and circulation expenses are also shown. The percentages of the total power consumption for washing and beating including empty running and circulation show that, under the most favorable conditions 70% of the power consumption is at least for the process of beating, including the friction which takes place between the bed-plate knives and the roll knives. The dirtier and weaker the rags are the lower this figure sinks, amounting for instance in the case of medium colored cotton to only 39.8%. In the case of No. 2 coarse sacking b, the picture is changed because the washing drums of this engine were raised too late. If the drums had been raised earlier considerably less than 55% of the empty running and circulation power consumption would have fallen to the washing process, and

TABLE II. **Reckoned per 100 kg. of Rags (unboiled weight).**

		Time in minutes.			Power Consumption in K. W. H.				% of total—Power consumption.				
No. of Diagram	Kind of Rags.	Required for charging and greater part of washing process	Required for beating process.	Total beating	For idle running	For circulation of pulp	For working the washing drums.	For breaking up and beating.	For Idle running	For circulation of pulp.	For working in washing drums.	For breaking up and beating.	Total Power Consumption in K.W.H.
1a	Canvas (thick charge).	32	71	103	7.7	37	2.7	15.1	10.7	51	3.7	34.6	72.5
1b	Canvas (thin charge	37	66	103	7.7	31	2.9	25.4	11.5	46	4.5	38	67
3	Coarse Sacking (b).	31	88	119	9	40	4.8	21.8	12	53	6.2	28.8	75.6
3	Cotton seams	66	55	121	9.3	42.4	4.5	21.8	13.9	54	4.1	28	78
4	Dirty Linen I	15	78	93	7.1	32.2	4	17.3	11.5	53	7	28.5	60.6
5	White Trousers	0	79	79	6	25	3.5	14	12.5	52	6.6	28.9	48.5
6a	Medium coloured cotton (gradually beaten	44	51	95	7.3	30.3	4	17.8	12.3	51	6.7	30	59.4
6b	Medium coloured cotton (quickly beaten	44	32	76	5.8	24	3.8	11.2	13	53.5	8.5	25	44.8

the latter would have had a smaller share of the total power consumption than the 42%, which was ascertained. In practical operaton only 3 kw necessary for driving the washing drums for a longer period than was necessary need be considered, as the empty running and circulation would have to take place all the same, on account of the beating process.

Many facts may be gathered from the tables given which cannot be mentioned here, but it will be very easy for the reader to find out from the tables that which interests him most.

I shall now return to the thin charge provided for diagram 1b. The time of beating, calculated at 100 kgs is, as will be seen from table 2, just the same as in the case of thick charging, and the wear in the engine is naturally also the same, whilst the power consumption is about 5½ kwh lower. 25.4 kwh were necessary for beating 100 kgs of rags, i.e., somewhat more, as in the case of the thick charge (25.1 kw). For the washing operaton 0.6 kwh was saved; a proof that the washing with the thin charge is cheaper, although. as everyone must admit, more thorough. The chief saving, however, of the thin charge consists in the small power values requisite for circulation pulp, which were only 31 kwh compared with 37 kwh. This proves that the power for the circulation of the stuff not only sinks at the same rate at which the charging weight is reduced, but even somewhat quicker. This observation is especially interesting, as it shows that with thin charges, in addition to the better washing of the rags with a similar utilisation of the engine, there is also a saving in power. This same fact, as I was able to prove, may also be applied to whole stuff, although in the latter case it is of less practical importance. as it is often necessary to use a thick charge in order to obtain a greasy pulp. I would here point out that the above observations are directly opposed to those of Beadle, who in the "Papier Fabrikant", page 1183, No. 47, 1909, says that an engine filled with water requires more power than if the water were replaced by thick pulp. Beadle explains this phemonenon and mentions that thinner pulp requires more power for the circulation, which is the contrary to what I have stated; this is caused by Beadle basing his argument upon a wrong supposition. I have ascertained without any shadow of a doubt that our beater when filled with water needed 21.5 kw inclusive of empty running and friction, whilst when charged with pulp 25.28 kw were required, according to thickness of the charge.

TABLE III.

Distribution of Power Consumption for Idle-Running and Circulation between Washing and Beating Work, reckoned per 100 kg. of rags (unboiled weight).

No. of Diagram	Kind of Rags.	Percentage of idle running and circulation falling to washing process.	Percentage of idle running and circulation falling to beating process.	Power Consumption in K.W.H.						% of Total Power consumption.		
				For idle running for washing.	For idle running for beating.	For circulation for washing.	For circulation for beating.	Total power required for washing. Power for washing plus idle running and circulation.	Total power required for beating inclusive of idle running and circulation.	Required for washing including idle running and circulation.	Required for beating including idle running and circulation	Total Power consumption in K.W.H.
1a	Canvas (thick charge)	42.5	57½	3.3	1.4	15.7	21.3	21.7	50.8	30	70	72.5
1b	Canvas (thin charge)	47	53	3.6	1.1	14.6	16.1	21.1	45.9	31	69	67
2	Coarse Sacking b.	55	45	5	1	22	18	31.8	43.8	42	58	75.6
3	Cotton seams..................	60.2	39.8	5.6	3.7	25.5	16.8	35.6	42.4	46	54	78
4	Dirty Linen............................	46	54	3.3	3.8	4.8	17.4	22.1	38.5	65	63.5	60.6
5	White Trousers......,..................	44	56	2.6	3.4	11	14	17.1	31.4	35	65	48.5
6a	Medium coloured cotton (graudally beaten)	63.5	36.5	4.6	2.7	19.2	11.1	27.8	31.6	46.8	53.2	59.4
6b	Medium coloured cotton (quickly beaten)	78	22	4.5	1.3	18.7	5.3	27	17.8	60.2	39.8	44.8

In a similiar experiment with the finisher, it could be established that with a pulp density of 6% and a raised roll, 31 kw were required for empty friction and circulation, whereas when this engine was filled to the same height with water (measured before being charged into the role) it required only 20 kw with the roll in the same direction. The difference between the engine charged with thick stuff and that charged with water is therefore still greater, which is explained by the fact that the charge in the beater was thicker than that in the breaker and the difference therefore must be greater. Whether Beadle, as well as the continental authorities to whom he refers, made their observations in old-fashioned engines and therefore obtained contrary results, or not, is more than I can say; at any rate it should be distinctly pointed out that they no longer apply today. Beadle further describes in his work, page 326, No. 14 1910, a trial which fully backs up my opinion. Therein he says in his own words "the power which is required when the five engine rolls are raised from the bed plate and run in water amounted to 38.5 h.p., and when they ran in half beaten stuff 71.5 h.p. This shows that the power consumption is 85.7% greater in the case of beaten stuff as when the rolls ran in water only." Beadle explains this contradiction in his results by saying that the speed of circulation and as a result the power consumption for the same, is very small after the charge and increases in the course of the beating process. Every paper maker will, without hesitation, support my assertion and trials have shown the same result in figures, i.e. that the exact contrary to that which Beadle asserts is actually the case. The speed of circulation is greatest at the commencement of the beating process, and gradually decreases with the swelling of the pulp, without causing any great fluctuations in the power consumption, as the power which is saved when the circulation of the pulp slows down, is required to compensate for the increased thickness of the charge. I shall give exact figures on this subject later on when I come to speak about finishing engines. My assertion that an engine filled with water requires less to the same height with pulp cased Prof. Kirchner to refer to the subject in his above mentioned textbook, and in discussing the contradictions in my observations and those of Beadle he remarks:—"It is by no means certain that either one or the other of these observations is incorrect. In carrying out this test very much depends upon the design of the engine, whether roll dips deeply or shallow into the water or pulp, whether it has to set much or little water or pulp in rapid motion, and upon the size of the space between the roll and bed-plate knives when circulating water and pulp . If the space is only small crushing and disaggregation is done besides the circulation of the fillings requiring more power for a thick pulp than for a thin one, and being quite absent in the case of water."

As I was only able to conduct my tests on this subject with the engine described above, I am not in a position to say anything against Kirchner's assertion, and admit that engines of other designs may give different results, which would explain the divergencies in the various observations. At the same time it should be stated that the comparison of the engine filled with water and that that with pulp gives quite a different result when the roll is lowered. I made the following interesting experiment. The position of the roll at the end of the beating was exactly noted, the power consumption then amounting to 52 kw. After emptying the pulp the power required to drive the empty engine with the roll in the same position was ascertained. This naturally could only be done for a very limited space of time and with great caution. In answer to the objection that momentary measurements are of no practical importance. I would here remark that these measurements were repeated several times, and that the results were practically the same in each case. The power consumption was automatically recorded, thus making it possible to read the diagrams with accuracy. The power required was found to be 54 kw, i.e., 2 kw, in excess of that required when the engine was charged with pulp. The engine was then filled with water to the same height and the roll set as before, where upon, on measuring the power consumption, it was found to have reached the astonishing figure of 82 kw i.e., almost 60% more than in the case of pulp filling. The explanation is probably that water has no lubricating action on the knives the same as pulp; in fact friction is increased by keeping the temperature down. This phenomenon will be better understood if we remember the fact, known to most fitters, that a much greater expenditure of energy is necessary to file steel under water than when it is dry.

The engine filled with pulp requires 52 kw for heating and circulation, 28 kw of which is accounted for by circulation, thus leaving 24 kw for empty running and beating. If the circulation is also reckoned in the case of the engine filled with water, 20-3½ kw for empty running 16½ kw for circulation, must be subtracted from 82 kw , leaving 65 kw.

The momentary output for empty running and beating therefore amounts to:—

1 54 kw in empty running
2 66 kw in engine filled with water
3 24 kw in engine filled with pulp

Kirchner rightly remarks that this work represented various working co-efficients, and is therefore not capable of comparison. In 1 and 2 it is a question of the working co-efficient when shearing or planing off the particles of steel in a wet or dry state, and in 3 that which occurs when heating the stuff. It will, therefore, be necessary to drop the idea of answering the questions raised by Beadle regarding the power consumption taken up by friction between the bed plate and roll knife material in this manner, but it is quite clearly demonstrated to what a great extent the pulp acts as a lubricant by preventing or at any rate reducing the shearing or planing off of steel particles, and thus favorably influences the power consumption. The percentage to which the power consumption drops when beating stuff depends firstly on the quality of the stuff to be beaten (harder or softer, greasy or short pulp raw material) and secondly changes during the process of beating at the same rate at which the quality of the pulp changes. This is also clearly shown in the diagrams, in so far as although the position of the roll remains the same, the power consumption does not remain constant, but rises or falls according to circumstances. This phenomenon will be again gone into later on.

From the above it will be clearly seen that it is impossible to ascertain in the exact and actual effective power of a beating engine, as the constantly fluctuating friction between the bed plate and roll knife material cannot be accurately determined. One should naturally try to reduce this friction and thus economise in power by adapting the position of the rolls to the character of the stuff. I was able to make this observation on one occasion by trying to obtain a certain marked roll position at the end of a very slow beating process in a much shorter time when beating another charge. The increase in the power consumption in the latter case, the roll being in the same direction, was 4 kw, which energy naturally had to be sacrificed on account of the unsuitable quality of the pulp for the roll position used. Economies in this respect could only be aimed at, however, when the beating process is not required to be unduly prolonged, as the power saved on the one hand would be more than expended for the increased circulation. I will now refer to the two diagrams 6a and 6b, which demonstrate the effects of beating slowly in the one case, and with rapidly lowered roll in the other case. The charge for both beating engines was taken from the same digester and therefore was absolutely identical. At A, the roll was lowered much more frequently, but each time to a lesser degree, whilst at B, as soon as the washing was finished, energetic beating was immediately started, and the roll lowered at short intervals until it occupied its deepest position. In this position it was possible to shorten the beating process by about 65 minutes, and the power required for 100 kw of rags fell from 59.4 to 44.8 kwh It is to be presumed that the difference in the case of hard stuff would have been considerably greater. According to table 2 the saving distributed amongst the various operations amount to 0.2 kwh for empty running, 6.3 kwh for the circulation, 0.2 kwh for the operation of the washing drums, and 6.6 kwh for the beating proper. With these observations I also found myself in opposition to Beadle who in the "Papier Fabrikant" on page 100, 1910, says:—"Would it not be more economical to lower the roll more frequently and gradually so that the space between the roll knives and the bed plate continually agrees with the condition of the pulp? This point could be studied with the aid of a dynamometer and I believe it is quite natural to expect that a gradual lowering of the roll would cause a greatly reduced power consumption when beating the pulp, as in the case when the roll is suddenly and violently lowered in three or four intervals."

It has been the custom up to the present to consider slow beating to be the correct procedure, but it is a question as to how much superior from a paper-technical standpoint the pulp beaten according to A is to the other, in order to justify the much higher power consumption

(14.6 kwh per 100 kgs.), and the reduced efficiency of the beating engine. There should be no doubt that the pulp beaten according to B, is in no way equal to the other; this is shown by the former being much more irregular, i.e., the length of the individual fibres varying very considerably. The greasiness of the pulp had diminished but, not having a Klemm's sediment tester, it was impossible to obtain figures on the subject. At the same time I do not attach great importance to the reduced greasiness of the pulp, as, on the other hand, it is not at all necessary in many papers and, on the other hand, can for the most part be compensated for in the finisher. It will always depend upon the purpose for which the half-stuff is to be employed. For strong document paper and the like, it will of course not be desirable to dispense with the paper qualities of the half-stuff beaten according to A, whilst for blotting and printing paper, etc., the rapid beating process is doubtless advantageous. It must be left to the individual paper-maker to find the most suitable method of beating for his own requirements, but I hope that the observations given here will be of assistance.

My assertion, which is based on repeated trials, that the gradual beating of 100 kws of pulp requires more power than sharp beating, has caused both Kirchner and Beadle to refer to this question. Whilst Kirchner finds it impossible to agree with me, Beadle now, contrary to his formre views, which, in the absence of practical trials were only assumptions, agrees with me entirely, and in No. 1 of the "Paper Maker" of 1913, writes:

"I agree with Mr. Rehn's observation that the more the beating process is accelerated by sharp beating or, in other words, the shorter the pulp is beaten the less power is requisite for beating, except that I think this observation requires careful interpretation. If one produces short stuff by so-called sharp beating, the fibres are cut instead of being bruised, which operation of course repuires much less power than the bruising operation. In other words, the power is expended in cutting asunder instead of beating and bruising and power expended in this way although it results in a much shorter fibre, is much more economical than when expended in defacing and deforming the individual fibres by the process of beating and milling"

Kirchner on the other hand in his text book remarks on this subject

"Finally there is no imperative reason for a contradiction of Beadle's very sensible assumption that the gradual lowering of the roll when beating the pulp requires considerably less power than when the roll is suddenly lowered in a number of intervals."

It is regrettable that this sentence was not suppressed, as a result of the mutual understanding with Kirchner, as in its present form it is very likely to belittle the results obtained in trials. After discussing the matter with Kirchner, I am now in a position to state that that gentleman now agrees entirely with my views. As I am very desirous of clearing up this point, on account of the important conclusions regarding practical beating which it makes possible, I might state that measurements have been repeatedly taken in Wolfswinkel both on beating engines and finishers, in order to obtain different results regarding the various effects of gradual and rapid lowering of the rolls. Diagrams 6a and 6b refer to the beating process, and diagrams 6a, 6b, 7a and 7b, to the finishing process, although the four latter at the same time show the advantage of a new method of beating which is to be referred to later on. This beating process, as the reader will subsequently see, allows of a great economy in power, and is based on the observation that economy is to be obtained by a rapid sinking of the roll.

All the experiments conducted in Wolfswinkel very clearly prove that my assertions regarding the rapid and gradual beating is correct. The main point remains, however, that the pulp obtained by beating processes of so dissimilar a character varies considerably. It is indeed possible to obtain approximately the same length of fibre, but not the same degree of greasiness. Furthermore the saving in power when violent beating is employed, shown in figures in table 2, should not surprise the paper maker very much, as the opinion is general that the short beaten stuff (rapid beating) requires much less power than greasy stuff (gradual beating). The fact that the saving in power not only consists in the saving of power employed for empty running and circulation as a result of the shortened washing period and thin charge, but also that the power consumption for the actual washing is very interesting. Hitherto the securing of the advantage of violent beating was naturally limited as soon as the quality of the paper to be produced required greasy pulp. The above mentioned new process of beating is intended to be of assistance by utilising the knowledge that violent beating with thin charge is conducive to economy, besides supplying stuff of any desired degree of greasiness. The process of attaining this end will be described in detail later on under the heading of "whole stuff."

Before going over to whole stuff treatment, I wish to call attention to the saving in the power expenses which may be made with the aid of the washing engines. By using the washing screen in the engine I find that, on an average, beating should be begun about 30 minutes earlier than without the screen. The time of course depends considerably on the quality of the rags; the dirtier these are the greater will be the saving. Assuming an average of 30 minutes, the saving per 100 kgs of rags (unboiled weight) i.e., 30 x 25 (power for empty running and circulation) = 750 —60 = 12.5 kwh, amounts to 4 kwh. If we take a price of 1 pfgs per kwh that would make 16 pfgs per 100 kgs of rags, and 2.5 Marks per day per engine. This saving is indeed somewhat small, but when the rags are not previously washed, saving in time owing to using the screen becomes considerably greater. The better utilisation of the breaker and the probable saving in wages, must also be taken into consideration. On the other hand increased loss of fibre occurs when the washing screen is used. I have, however, in an earlier publication[*] shown that this loss becomes quite inconsiderable when the precaution is taken to stop the washing with the washing screen as soon as the beating proper begins. Moreover the cleansing, especially in the case of dirty rags is more thoroughly carried out when the washing screen is used. Therefore both for technical reasons and also on account of the economy in power consumption I should like to recommend the use of the same old-fashioned washing screen, provided, of course, that it is only used for dirty rags and furthermore, provided that good supervision exists in order to prevent the washing process being continued too long.

I shall shortly publish the results of my power measurements with the finishing engine in this particular.

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[*] The prevention of dirt in superfine paper manufactures. Papier Fabrikant, 1911, pg. 782.

This will be followed in the next issue by an exhaustive article on the beating of whole stuff.—Ed.

THE FOREST PRODUCTS LABORATORY AND ITS WORK

By R. B. OWEN

In view of the establishment in Canada of a Forest Products Laboratory along the lines of the organization at Madison, Wis., this article is most timely. The following is a complete outline of the work accomplished there, and should be of intense interest to those anxious for more efficient utilization of our resources:

When America was discovered, virgin forests stretched from the shores of the Atlantic to the Mississippi and from the shores of the Pacific eastward to the arid plateaus of the Rocky Mountains. The vastness of these forests for years was an obstacle to the progress of the settler in his march to the West. They were cut, burned, and destroyed for agricultural purposes by the pioneer farmers. This war between the forest and the homestead waged for years and Americans grew up with the feeling that the forest was as inexhaustible as the air they breathed, and failed to appreciate the need of caring for and protecting it.

The commercial exploitation of the forest began after the tide of immigration had swept west of the Mississippi. With such an abundance of material and with the feeling that the forest was a barrier to progress it is but natural that the lumbering industry should develop without giving much consideration to the question of waste. The prairie towns and settlers needed lumber and only high grade lumber was acceptable to people who had been accustomed to using only the finest trees of the forest. So it was that the idea developed and took root in the minds of men that good timber was useful for the manufacturing of lumber only and that material unfit for lumber was worthless.

There are few fields in which the ingenuity of the mechanical engineer has made greater strides in a short time than in the development of milling and logging machinery, but this work he has had one goal; namely, to produce the maximum amount of sawed wood in the minimum amount of time. One who has witnessed the operation of a modern logging camp and sawmill will congratulate the mechanical engineer on his progress toward achieving this end.

An analytical study, however, of the modern logging camp and sawmill shows:

1. That 25 per cent. of the volume of all trees cut is left on the ground in the form of cull logs, tops, and stumps. This material checks natural reproduction, increases greatly the danger from fire, and retards, the clearing of the land for agricultural purposes when it is suitable for such purposes.

2. That many trees, especially of certain species, are left because it is thought they do not furnish wood suitable for the needs of commerce. Until comparatively recently red gum was considered worthless because it could not be seasoned without serious warping and checking. Tupelo gum was ignored for the same reasons. Western larch, western hemlock, and loblolly pine were not used because they were not as strong and durable as longleaf pine and Douglas fir. Oaks, hickories, and other hardwoods found in the southern states could not be sold because it was thought they were not as good as the hardwoods of the Ohio Valley. Such cases are rapidly becoming fewer in number but even yet the forests in all parts of the country contain splendid trees that are left to the fires and winds, octracised from the woods of commerce, because in the stress of business competition no one has time to determine whether or not it is practicable to use them as well as the species that are better known.

3. That after the saw logs reach the mill 50 per cent. of their volume is wasted in the form of bark, slabs, sawdust, edgings, and trimmings. Some of this waste is used for fuel but in most cases the larger part of it is destroyed in burners or thrown away.

We also discover, if we carry our analysis further, that after wood is put into service its period of usefulness is greatly diminished because it is not properly protected against organisms which destroy it, such as decay-producing fungi, insects, and marine borers.

Lumbermen and owners of stumpage have grown so accustomed to regarding these wastes as necessary that they are frequently impatient with the man who calls their attention to them and predicts that the time will come as it has with the steel and packing industries when the present so-called wastes will be turned into sources of profit.

Wood is a fibrous material, the fibers of which are composed of cellulose and lignin. When the fibres are separated they are valuable for the manufacture of paper, fiber board, and other fibrous materials. It has also been demonstrated that cellulose can be converted into fermentable sugars from which alcohol can be made. Wood alcohol, pyroligneous acid, acetate of lime, artificial silk, and many other products have been manufactures from cellulose. If methods can be perfected so that these processes may be applied with profit to mill and forest wastes the economic importance of the development will be stupendous:

1. It will increase the value of forest lands to the point where it may be profitable to the Government or the individual to grow timber.

2. It will decrease greatly the cost of clearing agricultural lands.

3. It will change methods of logging in that all slash, tops, cull logs, etc., will be brought from the woods, thus lessening the fire risk and leaving the ground in better shape for natural reproduction.

4. Instead of a sawmill only there will be a group of plants in which wood will be converted not only into lumber but into alcohol, paper, and other staples of commerce. From it in some cases would also be secured turpentine, rosin, and other valuable oils and gums.

The movement for the forest conservation in the opinion of the author depends more upon the ability of science to demonstrate the potential value of wood substance now wasted than upon any other element. If this can be done the solution of other phases of this great problem will follow as a natural sequence. To do this, or to aid others in doing it, is the purpose of the Forest Products Laboratory.

The Forest Products Laboratory is a laboratory of practical research (conducted by the Forest Service, United States Department of Agriculture), in cooperation with the University of Wisconsin. The purpose of the laboratory is:

1. To secure authoritative information on the characteristic mechanical and physical properties of commercial woods and products secured from them.

2. To study and develop the fundamental principles underlying the preservative treatment of wood, its use for the production of fiber products (pulp, paper, fiber board, etc.), and its use in the manufacture of alcohol, turpentine, rosin, tar, and other chemical products.

3. To develop practical ways and means of using wood which, under present conditions, is being wasted.

4. To serve as a public bureau of information on the properties and utilization of forest products.

5. To co-operate with consumers of forest products in improving present methods of use; also in formulating specifications and grading rules for commercial woods, materials secured from them (gums, oils, resin, etc.,) and materials used in the treatment of wood (creosote, zinc chloride and other preservatives).

The laboratory is located at Madison, Wis., and is situated on the northwest corner of Randall Field, the athletic field of the University of Wisconsin. The university furnishes, without cost to the Forest Service, the building and grounds, and the heat, light, and power required for the operation of the laboratory. The Forest Service employs the entire staff, supplies all equipment, and pays all other operating expenses. The equipement is avialable to the faculty and students of the university for research purposes only, and the laboratory staff presents a course of lectures at the university on the commercial uses of the forest resources of the country.

Field of Work.

The following summary of the kinds of work conducted at the laboratory will give the reader a fairly comprehensive idea of its field work:

1.—Physical Characteristics of Wood:—The physcical properties of woods studied are its specific gravity, shrinkage, microscopic structure, and, in the case of some species, its specific heat and heat con-ductivity. Data secured from investigations of this class are chiefly used in correlating the results of other experiments.

2.—Mechanical Properties of Wood:—The term "mechanical properties" as used in the laboratory is applied to those properties of wood which enable it to resist the action of mechanical forces. Strength, stiffness, hardness, and toughness are examples of such properties. This work includes tests on small clear specimens free from defects, and on structural timbers, and manufactured forms such as spokes, axles, etc. Tests are also made to determine the effect of methods of seasoning, preserving, and fire-proofing on the mechanical properties. The chief purpose of work of this character is to furnish engineers and architects data upon which to base moduli for design and upon which to base commercial specifications; to permit manufacturers using wood to judge the desirability of substituting other woods for those becoming scarce; and to determine how wood can be seasoned and treated with the least injury to its strength.

3. Chemical Characteristics and Properties of Wood:—This work consists of experiments to determine the quantity and quality of essential oils, tannins, gums, and other products which may be secured from different woods. It bears directly on the practicability of using certain forms of forest waste.

The work of the section of chemistry is laregly suppleemntal to the work of the other laboratories. Its purposes are:

a. To find uses for products at present having little or no commercial value.

b. To secure data upon which to base commercial specifications for wood products, wood preservatives, and other products secured from or used in the treatment of wood, and to investigate chemical problems that come up in connection with the work of the other sections.

4. Artificial Drying of Wood:—This class of work includes the study of commercial dry-kilns and their operation; also the experimental study of different methods of drying wood. The proper seasoning of wood is a very important factor in its use, and one which is at present too frequently neglected.

5. Agencies Destructive to Wood:—A branch of the Office of Forest Pathology of the Bureau of Plant Industry is located at the laboratory for the purpose of studying wood-destroying fungi and how they are affected by various wood preservatives. The chief purpose of this work is to suggest ways and means of perfecting the preservative treatment of wood. The laboratory also coöperated with the Bureau of Entomology in studying insects and other animal organisms which destroy wood.

6. Wood Preservation:—This division of work includes all problems dealing with the impregnation of wood with preservatives, fire-proofing substances and other materials. At present its attention is largely directed to the study of preservatives and preserving processes. Wood preservation concerns principally the railroads, mines, and other large consumers of structural timbers, but it also is of much interest to the building trades and to municipalities interested in wood as paving material.

These problems may be broadly classified into:

a. Those dealing with the preservatives themselves.

b. Those dealing with the methods of getting the preservatives into the woods.

To study the first class of problems, the laboratory is provided with a fungus pit which contains chambers thoroughly inoculated with various wood-destroying fungi. The humidity and temperature of the pit is so regulated that conditions in it are most favorable to the growth of fungi. Wood will be treated with different preservatives and placed in the pit. The efficiency of the preservative will be determined by its ability to resist the fungi. In addition to such laboratory experiments, timbers are treated and placed in actual service and are carefully inspected at periodic intervals. The second class of problems are primarily problems of mechanical engineering, dealing with the methods of forcing the required amounts of various preservatives into the different species and forms of wood.

Typical projects at present under way in the wood-preservation laboratory are:

a. Service tests on red oak and maple cross-ties, in co-operation with the Chicago, Milwaukee, and St. Paul Railway Company, to determine the relative efficiency of standard preservation and processes.

This work calls for the preservative treatment of approximately 1,600 red oak and maple cross-ties, which, after treatment, will be place in a test track by the Chicago, Milwaukee and St. Paul Railway. The track will be inspected and its condition reported from year to year by the staff of the laboratory.

b. The fungicidal properties of coal-tar creosote fractions.

These experiments are for the purpose of determining the relative efficiency of different fractions of coal-tar creosote in preventing decay' Specimens treated with the different fractions are also being placed in the waters of the Gulf of Mexico and the Bay of San Francisco to determine the relative efficiency of the different fractions in protecting yellow pine from marine borers.

c. The preservation of timbers used in the construction of silos.

7. Wood Distillation:—This line of activity is directed to the study of methods of distilling wood and methods of refining and grading the products secured. Work is also done to demonstrate the practicability of using certain of the products for different purposes, thus creating a market for them. This works bears directly on the possibility of using the enormous quantities of mill and forest waste.

This laboratory is at present equipped for studying both steam and destructive distillation processes. It is also equipped with a fractionating column still with which experiments are being conducted to determine the best method of commercially refining wood turpentines. The still is of such a capacity that materials can be handled on a commercial scale. The work of this section naturally divides itself into:

a. Experiments to determine what products and how much of them can be secured from different woods.

b. The design and operation of machinery best adapted to the production of these products having the greatest value.

c. Refining of the crude products.

At the present time the energies of the section are directed entirely to the study of resinous woods. The woods being first investigated are southern pine and Douglas fir.

8. Pulp and Paper Industries:—The pulp and paper work of the laboratory is confined to the study of the use of different species and forms of wood for the production of pulp and paper products. The chief purposes of the work are to determine the value, for the production of pulp, of woods not being used at present, and to conduct experiments for the purpose of perfecting present methods of manufacturing wood pulp. Especial attention will be given in this work to the development of methods of manufacturing a commercial pulp from wood which is at present being wasted.

In addition to the equipment at Madison the Forest Products Laboratory operates a ground-wood laboratory at Wausau, Wis. The laboratory at Wausau is equipped with a heavy-duty commercial grinder connected with a 500-horsepower motor-generator set. It also contains screens, a wet machine, a barker, and other equipment necessary for the commercial manufacture of ground-wood pulp. The plant is so designed that the speed of the grinder can be varied through wide limits. Its chief purpose is to determine whether commercial ground-wood pulp can be made from woods other than spruce.

9. Production of Naval Stores:—Methods employed in the production of turpentine and rosin are also studied by the laboratory. Work of this character is confined to the chipping of the trees, the collection of the gum, and the distillation of the resin secured. The present methods employed in the production of naval stores are crude and results in much unnecessary damage to the standing timber, and cause an unnecessary loss in value of the turpentine and rosin produced. The purpose of the work conducted by the laboratory is to improve this situation.

Internal Relations.

The entire staff of the laboratory, consisting of approximately sixty people, is employed in accordance with the regulations of the United States Civil Service Commission. The men are recruited from the professions of engineering, chemistry, forestry, and pathology; also from the different grades of clerks and skilled laborers. A large percentage of the staff are young and comparatively inexperienced, this condition being due chiefly to the newness of the work and to the loss of experienced men to commercial interests. It is, therefore, necessary to have the staff so organized that new material will be trained as soon as possible by more experienced men of the organization, and that plans of work and records of experiments shall be made and kept in such a way that, with a reasonable amount of study, the work of any man can be taken up and completed by another with the least loss of time and money. With this in view, the following principles are closely adhered to.

1. Each investigator must have a clear conception of the purpose and value of his investigation and the methods which he intends to follow in conducting it, and make such conceptions and methods a matter of record.

2. The plans for conducting investigations should be perfected, as far as possible, before work is actually begun.

3. All pertinent information on the materials used in the experiments should be secured and recorded.

4. In the different sections standard methods and terms should be used, as far as possible, in order that the work of the laboratory may be coordinated to be the best of advantage.

5. That frequent partial summaries and analyses of results be made so that plans may be notified, if necessary, before the work has proceeded too far.

6. That final and complete summaries and analyses of results be embodied in a report which shall be a permanent record of the work.

To facilitate the application of these principles and to insure the publication of results as soon as possible, the experimental work of the laboratory is classified into projects. A project may consist of a series of tests or experiments conducted.

a. For the purpose of investigating some specific problem in experimental research;

b. To verify experimental results on a commercial scale;

c. To assist outside parties in the application of scientific principles and processes of recognized commercial value with which the laboratory is familiar.

Projects may be conducted independently by the laboratory or in co-operation with an individual or commercial or other organization.

Each project is assigned to a member of the staff who is responsible for taking the initiative in all matters pertaining to it. In general, such an assignment involves:

1. A preliminary investigation:—This work embraces a review of literature and results which have been secured by previous investigators, also frequently tentative experiments to ascertain the best methods of attacking a problem. The results of a preliminary investigation are summarized in a written report, which in some cases may contain information of sufficient significance to be worthy of publication.

2. Working plan:—If the preliminary investigation shows the need of further work, a working plan is prepared. This plan records the purpose of the work, gives instructions for collection of material required and the methods which it is proposed to follow in conducting the work.

3. Description of material:—If the working plan is approved, the materials called for are secured and a record made of their origin and history.

4. Progress reports:—From time to time as work on a project progresses, the man in charge of it prepares progress reports containing summaries and analyses of results secured.

5. Project report:—When all the data called for by any plan are obtained, the man in charge of a project prepares a final report, giving a full discussion of results and conclusion reached. Project reports are the bases for most of the circulars and bulletins published by the Department, dealing with the work of the laboratory.

In order to give the fullest opportunity for constructive criticism, all working plans are submitted to one of the technical committees of the staff organization, each committee being composed of the members of the staff most experienced in the lines of work referred to it for consideration. Committee work of this character has precedence over all other work of the laboratory. After review by the committee, to give further opportunity for constructive criticism, and to keep the different members of the staff informed on all of the work of the laboratory, working plans are presented and discussed at the general staff meetings which are held each Saturday. All men in charge of important lines of work attend the general staff meetings. After full opportunity has been given for discussion, all plans are submitted to a committee composed of the director and two assistant directors for approval. Results of preliminary investigations, progress on various projects, inspection trips, and other matters of general and technical interest are discussed at the staff meetings.

Once a month similar meetings, open to the entire technical staff of the laboratory, are held, at which the technical literature relating to the work of the laboratory is reviewed, and technical papers are presented.

Relation to individuals and Commercial Organizations.

As stated in the first of this article one of the chief purposes of the Forest Products Laboratory is to serve as a public bureau of information in the field of work which it covers, but it is not the policy of the Forest Service, aside from making available information which it already has, to undertake work on the problems which are not of general interest to lumbering or to some of the wood using industries. It is frequently the case, however, that a problem confronting a commercial organization is one of general interest. In such cases it is the policy of the service to co-operate with the commercial organization, the co-operator sharing the expense of the investigation in proportion to the direct benefits which result to it from the work done. Co-operation of this character varies from cases in which the co-operator merely furnishes a part of the material required for the work, to cases in which the entire expense of the work is borne by the co-operating company, the laboratory merely supplying the men to supervise the work. In all co-operative work of this character the Department of Agriculture reserves the right to first publish the results.

The possible value of the Forest Products Laboratory to the lumbering and wood-using industries will be readily recognized by all who are familiar with the problems confronting these industries. The actual value of the laboratory, however, depends upon its ability to obtain results capable of practical application. To secure such results to the fullest extent it must have the support and co-operation of the men who are in constant and intimate association with commercial problems. The service, therefore, invites such men to share with it the responsibility of making the Forest Products Laboratory play an important and useful part in reclaiming the wastes of the forests and in increasing efficiency in the commercial use of wood.

NO TARIFF PENALTIES FOR U. S.

(Special to Pulp and Paper Magazine).

Washington, D.C., September 24, 1913.

Chairman Simmons, of the joint Congressional Tariff Conference Committee has informed the officials of the State Department that he did not believe it necessary to supplement the tariff bill with any resolution designed to continue existing trade relations with foreign countries. The point raised by Secretary Bryan several days ago, and which had given State Department official concern, was the subject of a further conference today between Senator Simmons and Robert F. Rose, a foreign trade adviser of the Department. The Senator stated that all nations would be entitled to the most favored treatment, and that all nations would be entieled to the most favored treatment, and that the statute under the proclamation of President Taft (the Canadian Reciprocity Act, Section 2 in particular) would be maintained unless some nation unduly discriminated against the United States.

"I do not believe there is any danger of foreign countries imposing tariff penalties against the United States," he said, "or any reason for such action. The new tariff will offer minimum rates from the United States to all countries. I can see no just reason for any country taking action ot dispute present conditions or to withdraw favored nation treatment from the United States."

Senator Simmons also announced that the conferes expect to hold a night session tonight, hoping to complete their work by midnight. He is, however, more optimistic than any other member of the conferees. Very few expect that a report can be reached before next week. Both houses of Congress will meet a day and adjourn a day until the report is ready.

Secretary McAdoo, Assistant Secretary Hamlin and Chief of Customs Division Halstead went before the conferees yesterday and discussed the administration features of the bill. Some of the more important amendments were passed over for the time being because Mr. Underwood desired to talk them over with members of the House. It was reported that for the most part the differences on the items passed over would be fixed up by Mr. Underwood and Senator Simmons alone. Among these were the question of the countervailing duty, the exemption from importation of goods made by child or convict labor, the 5 per cent. reduction in duties on goods imported in American bottoms, the dumping clause and the unrestricted importation of cigars from the Phillippine Islands.

While it was agreed upon that these terms would be agreed upon later without difficulty, the postponement of final consideration of them, together with the few items on the dutiable list upon which no agreement has been reached, adds an element of uncertainty to the speedy termination of the conference.

One of the most important Senate amendments was agreed to by the conference yesterday when it adopted the provision prohibiting attorneys from receiving contigent fees in customs cases. This method was taken to prevent undue litigation of customs cases. The action will be a heavy blow at costums attorneys both in Washington and New York.

All inquisitorial features of the bill have been modified and rewritten so as to impose penalties in the shape of increased duties where importers of foreign manufacturers refuse to give informaton as to the cost of productiom when required by the department. The House provision gave the department authority to exclude merchandise when manufacturers refused to submit their books to inspection of Government agents.

The Wood Pulp Importers' Association of New York sent a delegation here last week to make sure that the countervailing duty provision the wood pulp paragraph that was stricken out several weeks ago, would not be reinstated by the Conference Committee of the House and Senate. While here the committee also discussed the question of straw pulp, which has not been incorporated in the bill. This in intentional over sight may be effective in baring straw pulp imports. Heretofore this grade of pulp has not been mentioned in the tariffs, but importations of same were assessed with duty as pulp, as there was a provision that when an article is not specifically mentioned in the tariff, a duty was to be applied to it on the basis of the duty assessed upon a similar commodity. In the new tariff, however, pulp is placed on the free list and no mention of straw pulp is mentioned. As there is no proviso in the tariff allowing the assessing of similar duty when goods are in the free list, straw pulp will hereafter have to be classified as manufactures of straw, which carries a duty of 25 per cent. Chairman Underwood of the Ways and Means Committee will endeavor to have the words "Straw Pulp" incorporated in the bill before it is enacted.

VARIOUS USES OF TALC*

The properties of talc which render it useful for many purposes are its foliated or fibrous structure, its softness, its whiteness or light color and luster, its medium weight, its sectile and flexible, but not elastic quality, its greasy feel, its low conductivity but high absorption of heat and electricity.

The uses of talc are many, and as there are large resources available to maintain continued production its uses may be extended with advantage to both producer and consumer.

By far the most important use of talc is in the manufacture of paper. In order that the paper made by a series of chemical and mechanical processes may be written or printed on without the ink spreading over the sheet it is necessary to size it by adding starch, rosin or glue. As paper made of these materials only is more or less transparent, a feature which is particularly objectionable in paper for printing, white mineral fillers are used to render the paper opaque. China clay has long been used for this purpose, but the advantages of talc, especially fibrous talc, are recognized, and talc is gradually replacing the clay in the manufacture of paper. In the United States, talc, especially in the fibrous form, is used mainly as a filler for book and writing paper.

In Austria-Hungary much attention has been given to the use of talc in the manufacture of paper, and an article on that subject has been compiled at the request of the Union of Talc Operators of Austria-Hungary by Heinrich Rosenberg with the advice and assistance of prominent paper experts.

The following notes have been compiled from a translation of this article. It must be remembered, however, that the conditions described and opinions stated in these notes are not domestic but foreign.

The mineral fillers used in the manufacture of paper have not only the property of loading the paper, but they give the paper its necessary whiteness, opaqueness, absorption and capacity for polish. Some authorities consider that minerals have been wrongfully called fillers because they not only serve as fillers, but when rightly used improve the quality of the paper for certain purposes.

All attempts in Austria-Hungary to manufacture Chinese absorbent paper failed until talc was used, nor did they succeed in making a really superior quality of paper for rotation printing or for fine art printing until fine talc was used.

Talc was used with wood pulp to make blotting paper and cartridge paper.

It is much easier to produce a heavily sized paper than to meet the requirements for printing and blotting. But this is made possible by the use of mineral fillers, and for papers for the higher kinds of typography talc easily takes first place. Its opaqueness and yield under normal conditions of recovery from waste water are very marked.

Views as to the use of minerals differ widely. Essential facts are not numerous either in practice or in the literature of the subject. The result is that with increasing competition the paper manufacturers make more or less effort to keep secret the results obtained.

It may be uncertain whether the use of greater quantities of starch, water glass, casein, etc., is suitable for binding the minerals; but this much is sure, that the extremely fine particles of talc stick fast in the material, whether it be rag or surrogate, even though little or no binder of this sort is used. No mineral equals talc in superficial attraction (Oberflachenanziehung), and in combination with the information that the paper made with talc which had been delivered to him fulfilled in every respect the strictest requirements. I became convinced of the special retention (Haftennbleiben) of talc in paper by an importation of Chinese specialties in a paper factory. A microscopic section of absorbent paper containing both kaolin and talc showed a retention of more than twice as much talc as kaolin.

The results obtained in papers for art printing with a content of ash of 15 per cent (19 to 20 per cent was put into the cylinder) were suprisingly good. The fine paper thus produced may be regarded as first quality lithograph paper, as it is adopted for the softest half tones as well as for the deepest shadings and the heaviest colors.

Below is given a statement of the action of talc in the various processes pertaining to paper manufacture and also an exposition of the various kinds of paper, with a brief discussion whether talc can be utilized therefor, and if used, what beneficial effects in the various papers result.

Talc in paper effects a more uniform distribution of the moisture, improves the polishing, rolling and cutting as well as the strength of the paper. Of the various forms of paper in the manufacture of which talc is used this article mentions 36.

In writing paper it improves the quality and facilitates erasures. Small quantities of talc may be used to advantage in document paper and book paper. The use of fine grades of talc in making the thicker letter papers produced a fine quality which could hardly be distinguished from the best rag product. The same is true of typewriter paper and letterpress copying paper. Envelope paper, like certain wrapping papers, must have the characteristics of rag paper, and in such case talc was used with highly satisfactory results.

On account of its high absorption talc is recommended for use in the manufacture of filter papers, blotting papers, and porous papers generally where a good degree of absorption is desired.

Talc is used to advantage in a wide range of wrapping papers, particularly in those in which a high percentage of ash is not objectionable. Talc has a decided superiority over kaolin and gypsum.

As music papers are much exposed to the light the papers heavily filled with talc have proved particularly popular because of the opacity of talc.

Talc is being more and more used for photochemic and autotype papers, as well as for lithographic printing papers, map printing, illustration and advertising papers, for roofing, sheathing and wall papers.

Since talc increases the printing capacity and diminishes the transparency and gives to the paper a better character it is suited both for flat and for rotary newspaper printing presses. The advantages especially appear in dealing with rather thin newspapers with which transparency is the difficulty and where a plastic appearance of the printing is desired.

In a large Scandinavian paper factory Chinese and Japanese absorbing papers were made from French, American, and Syrian talc. Eighty per cent of the French talc, 85 per cent of the American talc, and 90 to 95 per cent of the Syrian talc remained in the paper. Since, under similar conditions with these kinds of paper, only 35 per cent of kaolin remains in the paper the superiority of talc was shown beyond question.

It is stated by some of the largest producers of talc in the United States that general conditions of trade show some improvement over 1911, caused to a large extent by the manufacturers of newsprint papers facing an unsettled condition in the clay industry abroad and that this has dispensable resin milk (Harmzilch) talc offers a relatively strong resistance to the penetration of water into paper surfaces. A well-known lithographer said a short time ago opened a market for the better grades of talc. It is believed that the time is not distant when the American paper manufacturers following the lead of some of those abroad will more readily accept talc as a better filler than clay because of its higher retention, its fibrous and strengthening qualities, and its quick absorption of the inks in presswork, qualities which are being demanded by the press and by printers generally.

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*From advance chapter of "Mineral Resources of the United States" for 1912.

One of the uses of talc for which there is a large demand is in the manufacture of rubber. Talc is not only mixed in the rubber throughout its body, to the deformation of which the soft slippery particles readily adjust themselves, but it is used on the surface to free the rubber from the moulds.

There is an important use of talc in sizing and bleaching cotton cloth. It is clained by at least some of the producers in Moore County, N.C., that for bleaching, pyrophyllite is better than talc.

On account of its high insulating qualities with reference to both electricity and heat talc is employed in the manufacture of many forms of insulators, among which may be mentioned the covering of electric wires, switchboards, and the flooring for electric stations. A considerable content of fine grains of ore may be expected to impair the talc for electric insulators. However, the injuries particles of iron ore may be removed, apparently, as from asbestos, by treatment with phosphoric acid according to United States patent No. 1049972, granted to W. C. Arsem January, 7 1913.

Talc is said to be used in the manufacture of certain forms of shade cloth and cutrains, and it forms an important ingredient in many soaps, especially the lower grades. Its slippery feel fits it to be used alone or mixed with oil for lubricators. In dry form it is commonly used to dust into gloves or shoes, as well as into tubes or conduits through which other bodies are to be moved.

In the manufacture of toilet powders it has a wide application, and in its purest form is used for medical purposes.

Much powdered talc is used in the manufacture of paints, particularly of waterproof paints, as well as for foundry facings in casting iron. It is also used in dressing skins and leather and in the ceramic arts.

U. S. Figures for July

(Special to Pulp and Paper Magazine).

Washington, D.C., September 26, 1913

Owing to the granting of free entry of wood pulp and printing paper to other countries than Canada, the Department of Commerce and Labor has had to delay its statistics report for the month of July. This report has now been issued, and according to the advanced sheets a total of 17,525,168 lbs. of Mechanically Ground wood pulp, with a value of $138,616, were brought into this country during the month of July, 1913. This is a decrease of 17,555,146 pounds in tonnage, and $151,871 in value, under July, 1912. Of the 17,525,168 pounds imported in July, 1913, 16,994,144 lbs, with a value of $132,349 came directly from Canada.

In the chemical unbleached and bleached wood pulp there was also a decided falling off in the imports of July, 1913 and July, 1912. In the former the decrease amounted to 2,679,273 pounds and in the latter 903,953 pounds. Of the 49,612,456 pounds, with a value of $814,159 of unbleached pulp imported during July, 1913, but 10,271,579 lbs., valued at $189,081 is accredited as coming from Canada. The Dominion's share of the imports of Bleached is correspondingly as small, for of the 13,393,823 lbs, valued at $312,085, imported during July, 1913, only 705,468 lbs., valued at $18,773 came from accross the border.

Printing paper imports are somewhat different, as far as the total tonnage and Canadian share is concerned. Imports of this item during July, 1913, amounted to 32,957,640 pounds, valued at $654,331, an increase of 21,047,816 pounds in tonnage and $415,240 in value over the corresponding period of the previous year. Outside of 639,527 lbs., withh a value of $26,539 the entire imports of newsprint paper during July, 1913, eminated from the Dominion of Canada.

U. S. Importers

(Special to Pulp and Paper Magazine).

New York, N.Y., September 27,

Importers of wood pulp and paper in this city are beginning to wonder when the red tape business at Washington will come to an end. Although the Treasury Department announced several months ago that countries enjoying favored nation treaties with the United States would be granted the same privileges that were extended to Canada on July 26, 1911, in Section 2 of the Canadian Reciprocity Act, and that a refund would be made to importers of all duties paid since that date; no attempt has yet been made to reimburse them. Only cases that have not been passed upon by the Board fo General Appraisers are being reliquidated.

Though the matter of direct shipment has been settled, as reported in these columns last issue in connection with Norway and Sweden, importations have been held up during the past two weeks from Sweden on this technicality. A mill having factories along the coast of Sweden chartered a steamer to go from one mill to the other and pick up certain consignments of pulp for the United States. The Bills of Lading of these shipments were made out at the mills, but dated at Bremen where they were transferred to the steamer for America. Upon arrival the custom collector claimed they were not direct and subsequently charged duty on them. Protests have been made, but it will probably be quite a little litigation before the matter is settled.

The latest development in the favored nation treaty matter is the free admission of pulp and paper from Belgium and Denmark, though this does not have much effect upon the American market as very little of this commodity is imported from those countries. The Secretary of State last week informed the Treasury Department that our treaty relations with Belgium and Denmark have the same favored nation basis as our treaty with Austria-Hungary. Actign upon this information the Treasury Department immediately sent notices to collectors that wood pulp and paper from those countries must be admitted free of duty.

These instructions say: "This applies to future importations as well as importations heretofore made but not liquidated, and to entries liquidated but against which protests have been filed, but not forwarded to the Board of United States General Appraisers. Importations covered by protests pending before the board or in the court will await final disposition by the board or the court, as the case may be.

QUEBEC'S RECEIPTS FROM LANDS AND FORESTS.

According to the financial statement of the Province of Quebec for the fiscal year ending June 30, the receipts for lands and forests totalled $1,760,466, this being the most productive of any department. The expenditure of the the department was $327,383.

WHO'S WHO IN THE CANADIAN PAPER INDUSTRY

The Fifth of a Series of Monthly Articles in the Pulp and Paper Magazine.

CHARLES B. GORDON

By E. S. BATES

It is always interesting to know something about the lives of those men who have reached the "top of the heap" without "pull," and invariable, it is found that the "push" necessary for the attainment of such an end is concentrated in the individual. They are referred to as "self-made men," of whom Canada has her fair quota. The subject of this week's sketch is ranked among our "self-made men." He has reached the "top of the heap" through "concentrated push" and the attainment of that end is due solely to the manner in which he has engineered the resources with which he was endowed.

Mr. Charles B. Gordon was born in Montreal, November 22nd, 1868, the son of the late John Gordon, a much respected merchant of the city, and latterly head of the dry goods commission house now running under the name of John Gordon & Son. "Charlie" Gordon, as he is known among his old associates, attended public and high school in the city, and, while barely in his teens, started work in the warehouse of the dry goods wholesale firm of Messrs. McIntyre & Son. "Charlie" was just the same as any other boy of his age and caused just as much trouble around the warehouse as any boy would be capable of, but, during his five years association with this firm he obtained a pretty thorough knowledge of the dry goods business. Dry goods and Charlie have been fast friends ever since, he making dry goods and dry goods being largely instrumental in the making of him.

MR. C. B. GORDON, Provincial Paper Mills Co., Ltd.

On leaving Messrs. McIntyre & Son, Mr. Gordon started in business for himself manufacturing men's shirts. He still recalls the day with a certain amount of pride and satisfaction when he first turned out ten dozen shirts per week; and that business grew until it became the largest shirt manufacturing establishment in the Dominion, turning out many hundred dozen every week.

The Standard Company was a very large customer of the Dominion Cotton Company which, at that time, was in pretty bad shape financially. About 1904, Mr. Gordon with a number of other capitalists undertook the reorganization of the Cotton Company. This reorganization was successfully engineered, so much so, in fact, that to-day the Dominion Textile Company, which was then formed, is the largest cotton manufacturing concern on the Continent, operating at full time twelve large cotton mills and practically controlling the cotton manufacturing industry in this country. The power in the man has been clearly shown in the remarkable growth and history of the company. He has gathered around him a body of men that would practically insure the success of any industrial undertaking, with the result that to-day the Dominion Textile Company is one of the strongest and most successful of Canada's industrial concerns.

Besides being president of the Dominion Textile Company, Mr. Gordon is connected, in a more or less degree, with various other large financial and industrial corporations. He is president of the Hillcrest Collieries; vice-president of Penman's Limited, the largest knit goods manufacturing concern in America; vice-president of C. Meredith & Co., Ltd.; a Director of the Bank of Montreal, Director of the Dominion Bridge Co.; Director of the Royal Trust Co.; Director of the Montreal Cotton Co.; Director Ritz-Carlton Hotel; Director of the St. Lawrence Paper Mills Co., Ltd.; and numerous other corporations. He is also a Governor of McGill University and President of the Canadian Manufacturers' Association for the coming year.

Mr. Gordon is a man who meets all on an equal footing. Possessed with a forcible and convincing manner, he commands attention from those with whom he is engaged. He is rarely wrong in sizing up either a man or situation, and to this can be credited a good deal of his success in life. Born and brought up in Montreal, he has a great many associates throught the city, and invariably, these men speak of "Charlie" Gordon as one of the whitest and best living. That in itself is a sufficient recommendation for a man.

Mr. Gordon is not a great sportsman, having been too busy up to the present making money. And, in connection with his faculty of making things go, it might be remarked that he has always taken a keen delight in motor boating. Perhaps the obstinacy of the gasoline engine had some attraction. He now owns a large steam yacht, magnificently fitted up for comfort and does a lot of cruising and fishing down around the Gulf and along the Eastern coast. This forms his principle means of recreation. He is a member of the Mount Royal Club, the Montreal Hunt Club and the Senneville Golf Club of Montreal.

In 1897, Mr. Gordon married Miss Edith Brooks, of Seaforth, Ontario. He has three bouncing boys, George Blair Gordon, Charles Howard Gordon and John Gordon, and, it is said that these three charges can take up most of Mr. Gordon's spare time. He has a residence on the western slope of the hill, away fron the broil of industrial life, and there he manages to put out of his mind, the many things that command his attention in connection with his industrial pursuits. Mr. Gordon, although only forty-five years of age, is a power in Canadain financial and industrial life.

He is associated with "Ike" Weldon, George Copping, and Fred Duncan in the Provincial Paper Mills Co., Ltd., the largest manufacturer of book papers in Canada.

His latest honor, the presidency of the Canadian Manufacturers' Association is the talk of every one, all of whom agree that the choice was a most happy one.

MR. GORDON SPEAKS ON TARIFF.

Mr. C. B. Gordon of Montreal, a director of the St. Lawrence Paper Mills Co., in his inauguration speech at the Manufacturers' Association at Halifax, gave some time to the question of tariff revision.

The newly-elected president of discussing the tariff situation, said:

"It must be remembered that since 1878 the investment of British and foreign capital in manufacturing establishments and in industries incidental thereto has ben enormous. Any change, therefore, in the policy of the country in regard to tariff matters must be approached in a careful and conservative manner, if the best interests of our own people are to be considered, and if the capital already invested is to be properly safeguarded and the high credit we have enjoyed in the past maintained. But although I think I am safe in making the statement that the tariff is generally satisfactory to the manufacturers' interests and is approved by the vast majority of the people of Canada; still, through the lapse of time, and due to the everchanging conditions under which business is carried on, especially in a new country, inconsistencies have crept into it, and if in many cases these are not of a serious nature still they call for adjustment. I am not here to say a general revision of the tariff is rather necessary or advisable at this time, but I am convinced that there are some items in the tariff which call for immediate action on the part of the Government, which, if not properly adjusted, will lead to serious losses to investors and to the credit of the country generally. I refer, for instance, to the iron and steel tariff, to which a certain amount of protection is given with one hand, and taken away with the other. The finished products in this country have been given a fair amount of protection, but the materials of a semi-finished nature and which are produced by the development of our natural resources, are left without proper protection. I don't think, from what I am told, that even this schedule calls for any advance which would cost the consumer a penny, but rather to internal adjustments, placing the rates on the different manufactures of iron and steel where they properly should be to afford fair and scientific protection according to the amount of capital and labor involved.

"The Manufacturers' Association understands that the position of the Government in dealing with the tariff is a delicate one, as it has been said that the West was opposed to protection. But we have reason to believe that considerable change has come over the West in this respect. Why? Because they are witnessing the establishment of more and more manufacturers in their midst and it has become a settled policy of the Association to encourage in every way in their power, the opening of establishments in the West. If any person be doubtful of the present or future prospects of manufacturing in Canada, I would advise a visit to the Canadian National Exhibition at Toronto, which has just closed. Here will be found gathered together, each year, and placing before the Canadian people for their approval, as it were, the results of our present tariff policy, and I think those of you who have visited that great exhibition, which has no equal on the continent, will agree with me in pronouncing it conclusive evidence of the progress of manufacturing and the desirability of continuing the present policy."

UNDERWOOD'S VIEWS.

(Special to Pulp and Paper Magazine)

Washington, D.C., September 25, 1913.

Chairman Underwood of the Ways and Means Committee, stated today his views on the probable effects of the tariff law in the following words:

"The new tariff law is expected to pass Congress and be signed by President Wilson on Saturday so that its provisions may go into effect next Monday. The bill reduces the duty on nearly all articles in use by the American people and increased importations from foreign countries are expected to follow its passage.

"The bill repeals all treaties now existing between this country and European nations from whom the United States now enjoys favored nation treatment. The bill provides only one level of duties, President Wilson being authorized to impose by proclamation higher duties against any Government which discriminates against the United States.

"It contains notification for foreign countries of the desire of the United States to negotiate new treaties. Each nation is asked to maintain the status quo as to duties now existing for the next four months, when new agreements will be entered into.

"There is some criticism by American statesmen of this programme on the ground that American exporters are not sufficiently protected against tariff increases by foreign countries.

"News print paper, wood pulp and many other articles will hereafter be admitted free of duty, and equally as many commodities have been greatly reduced in duty, and increased importations are expected. It is estimated that many millions of dollars of foreign goods will be imported each in excess of preceeding intervals under the present law.

J. H. THICKENS GOES WITH BEAVER COMPANIES.

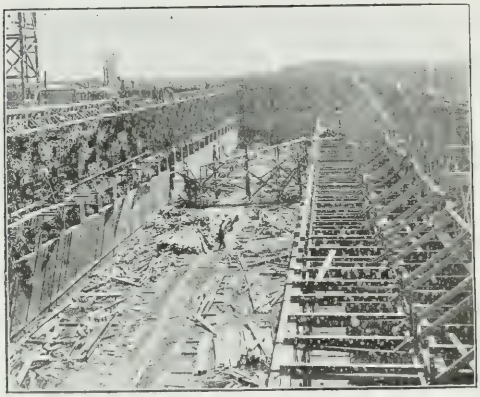
Mr. J. H. Thickens, who is so well known to the pulp and paper world on account of his work on ground wood in the United States Forest Products Laboratory at Wausau, Wis., has been appointed Director of the Beaver Laboratories at Buffalo, N.Y. This company is building a new board mill at Thorold, Ont., and is opening up a laboratory to investigate the uses of fibre, in board and other industries. Their progressive policy has given them a foremost place in the manufacture of wall boards.

Mr. Thickens has been general superintendent of the Burnett Falls Mfg. Co. at Cornwall, Wis., and has had probably the best technical experience in the manufacture of board of any one in the United States.

The Montreal Journal of Commerce publishes a sketch of the life of Mr. Samuel Kydd, the Editor-in-chief of The Montreal Gazette, and because of his unobtrusiveness probably the least generally known of the leading journalists of the Dominion. Mr. Kydd is not at all in doubt as to the position of the Press in the national life of Canada. Asked if he regarded the influence of newspapers as being on the increase, Mr. Kydd declared that it was, but qualified his remarks as follows: "You cannot measure the influence of a paper. It is like a man who may develop influences he knows nothing about. It depends a good deal on his strength and weight. If a paper has ideals and ideas, and puts them out effectively and wisely, its influence is bound to spread just like the influence of a good man. The good will and power of a paper is often a matter of slow growth. On the whole, however, I believe that the good papers of to-day wield a wider and better influence than those of a generation ago, largely because the appers of to-day are fairer in their treatment of political opponents."

BEAVER COMPANIES' AMBITIOUS PLANS.

One of the most progressive companies operating in Canadian and the United States is that of the Beaver Companies manufacturing wall board at their numerous plants throughout this continent and also in England. Through a wide and well directed campaign of advertising which they have carried on, Beaver board is now known practically everywhere and very largely used. The Editor recently spent some time going over the plants and the organization with Mr. McGlashan, the president. The Head Office in Buffalo is most interesting showing the result of phenomenal expansion and rapid addition. Mill and office accommodation hardly completed soon becomes inadequate for the rapid expansion of their business. They have grown from a small local wall board company to an enormous concern now manufacturing in three countries and exporting to many more. A few points are striking and indicate somewhat the basis for the rapid growth. First, the personel if the organization is most carefully selected and watched in every department. They employ a superintednent of personel who was a student of Dr. Blackstone in Boston and who scientifically sizes up every person employed by the company and advises whether they are adapted to the special position under consideration. They rarely fail in judging accurately and have little difficulty with their employees. The heads of each department are members of the executive of the company. It is probably the most socialistic and democratic industrial organization of any size. The results attained seem to justify the policies which they are following. The company are now establishing in Buffalo laboratories for investigation of wood fibres to improve their product and work on new lines of manfacture. The new board mill being built at Thorold will be a model in board manufacture. Rice, Barton & Fales are building a large board machine of 60 dryers with a capacity of 60 tons per day. The entire plant is of reinforced concrete and situated on the Welland canal hard by the new plant of the Ontario Paper Co. The board manufactured at this plant will be taken to Buffalo to the finishing plant and to Ottawa where their Canadian finishing plant is situated. The southern mills of this company are experimenting with the use of loblolly pine and other southern woods. In Canada, they propose to buy their wood, at least for some years. The accompanying illustrations show the plant at Thorold in its present stage of construction.



NEW BOARD MILL, Beaver Companies, Thorold, Ont. Under construction

PAPER MILL UNION BEING ORGANIZED.

(Special to Pulp and Paper Magazine.)

Ottawa, Ont., Sept. 29th.

There is to be a new writing on the page of the pulp and paper industry in the Ottawa valley and it is the hand of the United States labor organizer which is to hold the pen. One Robert J. Dickson, international organizer of the union to which laborers in pulp and paper mills in the United States belong, is in the city to form a union among the 1,200 to 1,500 employes in the mills in Ottawa and Hull. To your correspondent Mr. Dickson stated that with the probability of a partial transfer of the American manufacture of pulp and paper to Canada as a result of the new United States tariff labor interests were commencing to interest themselve in the unionization of the Canadian industry.

"The tariff has been removed from paper while a duty has been left on wood which will drive the pulp industry to Canada. If this happens you want to be sure to get the eight hour day here," was his statement. It is understood that Mr. J. R. Booth is not opposing the unionization of his employes though what attitude other mill owners may take is uncertain. The proposed union will include practically all workmen, including engineers, firemen and the like in pulp mills. There is already a papermakers' union proper.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR FOUR WEEKS ENDING AUG. 2, 9, 16, and 23rd, 1913.

	Quantity
Bleached Chemical Dry	1,182 tons
Unbleached Chemical Dry	29,642 tons
Chemical Wet	1,283 tons
Mechanical Wet	47,182 tons
Mechanical Wet—	
Canada	6,907 tons
Newfoundland	4,933 tons

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR TWO WEEKS ENDING AUG. 30th and SEPT. 6th, 1913.

	Quantity
Bleached Chemical Dry	693 tons
Unbleached Chemical Dry	13,850 tons
Chemical Wet	430 tons
Mechanical Wet	28,030 tons
Mechanical Wet—	
Canada	5,305 tons
Newfoundland	4,647 tons

CANADA'S FOREST WEALTH.

"In the past forty years the value of our lumber products has increased from $41,000,000 to over $184,000,000 while the capital invested in the industry has grown from $20,000,000 to $260,000,000. Since Confederation the forests of Canada have produced $1,321,000,000 worth of lumber." These, and many other statements of unusual interest are contained in an illustrated article from the pen of Mr. R. L. Campbell of the Canadian Forestry Association, which appears in this week's issue of the JOURNAL OF COMMERCE, Montreal.

Mr. Campbell goes exhaustively into the subject and show by diagrams, tables and statistics, the history, growth and future of the lumbering industry in Canada.

"The lumbering industry stands on the threshold of a wonderful development, although at the present time Canada is wasting her forest wealth like a prodigal. On scientific management of forests will depend the lumbering industry of the future" is the conclusion reached by the author.

BRITISH TRADE NEWS

(Special to Pulp and Paper Magazine.)

London, Sept. 20, 1913.

Although the term of office of the present Lord Mayor of London has a little under two months to run, the preliminaries for selecting his successor have to be undertaken. The office will devolve upon Sir Thomas Vansittart Bowater, who is head of the well-known firm of W. V. Bowater and Sons, papermakers, Queen Victoria Street, London. Undoubtedly the high office of chief magistrate of the capital of the British Empire, which Sir Vansittart Bowater will be called upon to occupy, is one of the greatest honours the paper making industry could have conferred upon it as a whole. He will make an ideal Lord Mayor and the English press speak highly of him. Sir Vansittart Bowater was born in Manchester in 1862 and educated at Broughton College in that city. He entered the London Corporation as a Common Councilman in 1899 and served the office of Sheriff in 1905-6 when he was raised to a Knighthood by his Majesty the King. In 1907 Sir Vansittart was elected an Alderman and of course his next promotion is that of Lord Mayor from November 9th next. In addition to being a papermaker by trade, Sir Vansittart has devoted a good deal of his time to the affairs of the City of London and his services are being justly rewarded. Lancashire feels very proud over his selection because he will be the first Lancashire man that has attained to the Mayoral office. He is the donor of marble busts of the late King Edward and Queen Alexandria to that excellent institution here the Guildhall Art Gallery.

* * * *

No sooner have we got over the agitation that was raised in England against the railway companies increasing their rates, which affected paper and pulp in transit, than the question of freightage crops up. We are now struggling against high freights and they have become most serious for paper manufacturers engaged in exports, not to speak of those, who are importing from places abroad raw material for their mills. The Manchester Chamber of Commerce have discussed the matter and reference has been made to the great increase which has recently taken place in the rate of freight to Canada. The Chamber considered that the advances, which were 100 per cent. and in some cases more, were beyond all reason. It has been agreed that a conference should be sought at the Chamber with the representatives of the Canadian Government at present in this country, and communications have also been addressed to the Trade Board in London on the matter. The subject is one that the Canadian Pulp and Paper Association should not lose sight of as it must be remembered that if the rates are increased between here and the Dominion an attempt will be made also to raise them in voyages to the United Kingdom. This is only getting in the thin edge of the wedge. Pulp and paper shipments to England are heavy each year and the salvation of the British paper mills lies in Canadian shipments of pulp. Indeed, there is a great future looming at a short distance for Canadian pulps of all kinds in the United Kindom, and any ground lost now with the shipping and railway companies will be deeply regretted hereafter. Therefore, the Canadian Association should be alive to the importance of this matter and, if necessary, consult with the British Pulp Association.

* * * *

The Trade Board returns for August are of considerable interest to Canadians, because they depict the wonderful position that Newfoundland has jumped into. In printing paper and writing paper on reels Newfoundland exported to the United Kingdom of £76,193 worth in August, which s more than Sweden, Norway, Germany and the United States put together exported to this market. This indicates the growing demand there is for Newfoundland paper and there is no reason why Canada should not be in an equally similar position. Returns of this are very gratifying in some quarters. The total imports of printings and writings for the month under review reached £223,000 as compared with £216,000 during August 1912; the return for the eight months of this year are £1,516,000 as against £1,428,329 for the corresponding period last year. Hangings were imported in August to the value of £5,588—a decrease of £2,366—and packings and wrappings also showed a decline the figures being £236,350 compared with £270,236 in August 1912. The other imports were: strawboards, £79,084 as against £83,680; millboards and woodpulp boards, in which Canada has a big trade with the United Kindom, £58,004 compared with £53,588; printed and coated papers £19,249 as against £20,345. With the exception of coated papers all the imports from the United States show a decline in August. The total imports are as follows, together with the exports:—

Paper and Boards—	August	Total for 8 months.
Imports..................	£657,318	£5,050,243
Exports..................	279,970	2,503,231
Re-exports................	27,728	185,873

The eight months' figures show an increase all round, while the August imports and exports show a decrease.

* * * *

The exports of papers to Canada in August were as follows:—Writing paper, £994, as against £1,764 in August 1912; printing paper £9,880, compared with £15,756 in August last year; unneumerated papers £1,126, a decrease of £263. Writing paper and printing paper show a considerable increase in the exports from here to the States in August. Turning to the trade in wood pulp the imports were as follows:—

Chemicals—	tons	August	Total for 8 months
Bleached (dry).........	20,455	£ 15,922	£144,246
Unbleached (dry).......	32,360	261,120	1,870,542
Chemical (wet).........	816	2,792	36,271
Mechanical—			
Dry..................	644	2,859	24,767
Wet..................	44,945	100,342	790,145

Of these totals no chemical dry was received from Russia in August and the supplies of mechanical from Newfoundland were also very limited. The imports from Canada in mechanical show a decline, the figures being 3,625 tons valued at £6,841, as against 5,103 tons valued at £12,741 in August, 1912. The totals for the eight months are: 32,741 tons valued at £73,357 compared with 20,431 tons valued at £48,079 for the corresponding period in 1912. Of coarse the trade in mechanical pulp in August was very dull and the imports from Sweden ,Canada and other countries show a great decline whilst Norway increased very little. The total imports were valued at £383,035 for 80,140 tons, as against £429,102 for 92,448 tons in August 1912. These figures about sum up the state of the pulp market in the United Kingdom in August and the fact must not be overlooked that most of the supplies were on contracts entered into some time ago.

* * * *

The labor market in England is still in an unsettled state, but so far the paper mill workers are very quiet. The greatest unrest is in the China Clay pits where 5,000 hands are out on strike and there is no caly to sell, except in one or two exceptional cases. America is consequently still suffering whilst mill men here are adopting substitutes in the way of Mineral White, gypsum, etc., etc. Newfoundland should also be feeling the pinch of this strike by now as a good deal of Cornwall clay is exported there, whilst Canada gets the mineral indirectly through the States. At the time these notes are being written there is also a dock stirke at Manchester and consequently Canadian pulp and paper will be delayed in effecting deliveries. The work-people of the Wall-Paper Manufacturers, Ltd., of Darwen, have been granted a nice concession. They agitated sometime ago for a shorter hours shift in the day. At any rate the Company have given their workers the greatest consideration and a notice has been posted at their mills stating that work would commence at 6 a.m. and stop at 5.30 p.m. with of course the usual meal hour. This is only an experiment and if the shorter hours movement does not interfere with the production of the mills the scheme will be adopted permanently.

The output of the Riordan plant will be about 180 tons per day by the end of the year. The company have about 50,000 cords of pulpwood on hand. A third new digester has been completed and has been tested prior to lining, while a fourth digester is well under way. One of the new digesters will be in operation about November 1 and the fourth December 1st.

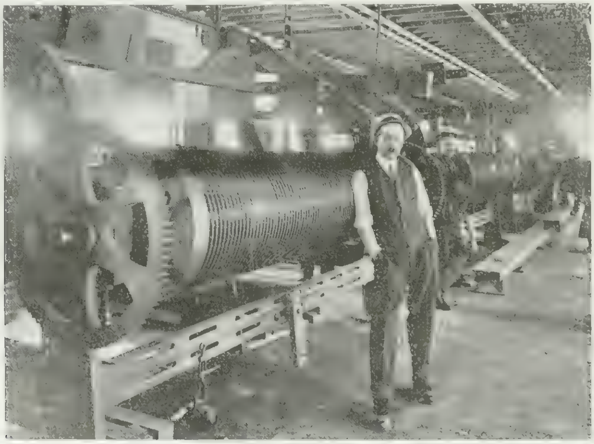
BRITISH COLUMBIA'S PULP AND PAPER INDUSTRY

The pulp and paper industry of British Columbia is the subject of an interesting report recently prepared by United States Consul General David F. Wilbur, of Vancouver. The pulp and paper industry of the province is steadily growing, he writes, although the markets are as yet limited to the Pacific ports. With a production valued at $1,250,000 in 1911 it is estimated that the 1912 production will amount in value to about $3,250,000. That this industry requires an exceptionally large plant of capital is shown from the fact that already between $12,000,000 and $15,000,000 is invested by the five companies that have installed plants in the province, although only two are operating. There is a good demand for chemical pulp in China, Japan and the Pacific States, but practically no market for mechanical pulp. For the coarser grades of paper, such as wrapping and news, the markets are in Western Canada and the western part of the United States west of Spokane and Denver the west coast of South America, Honolulu, Manila, Australia and New Zealand. Both in pulp and paper, the facilities for manufacturing are in excess of the market requirements. There is no question but that the best market for pulp will be the local mills.—CANADA LUMBERMAN.

CAPITAL WIRE CLOTH AND MANUFACTURING COMPANY, LIMITED.

The illustration shows the new plant of the Capital Wire Cloth and Manufacturing Co., Ltd., at Ottawa, which has established a wire cloth manufacturing plant for Fourdrinier Wires, Paper Mill Wire Cloth of every description, and Dandy Rolls and Cylinder Rolls. The cut shows Mr. J. R. Buchanan, president, in the foreground.

Already the business of the company has shown remarkable progress and it is hoped that this new firm for the manufacturing of wires in Canada will have the success it deserves.



INTERIOR OF THE FIRST UNIT. Mr. J. R. BUCHANAN, President, in the Foreground

The following personnel of the new company assure its success:

President—J. R. Buchanan, 16 years manager of sales for the Appleton Wire Works, and a practical wire man.

Vice-President—Fred F. Haefs, machinist and loom builder from same firm.

Secretary-Treasurer—Joseph W. Perazzo, wire expert, having past connections with William Cabble Excelsior Wire Works, the Eastwood Co., and Appleton Wire Works.

Superintendent—M. L. Peebles, steam and electrical engineer and patentee of numerous loom improvements.

Managing Director—Wm. Buchanan, formerly of DeWitt Wire Cloth Co., Eastwood Company, Cheney-Bigelow Wire Works, and for the last sixteen years general manager of the Appleton Wire Works, Appleton, Wis., having had in all fifty-eight years' experience in the business.

Their widest loom is 220 inches, so they are in a position to make wires of any width, in which they use their own metal formulae.

Already business is assured to almost double the initial capacity of the plant, which is a good omen for future success. This firm was attracted to Ottawa by the representation of the Publicity and Industrial Bureau, one of the best organizations of its kind in Canada.

LORD NORTHCLIFFE IN CANADA.

Lord Northcliffe, the head of the largest newspaper company in the world, delivered an address before the Canadian Club of Montreal on September 22nd, which created a great deal of interest among paper people. Lord Northcliffe is head of the Anglo-Newfoundland Development Co., Grand Falls, Newfoundland, which manufactures two hundred tons of newspaper paper a day. All of this paper is used in Lord Northcliffe's newspapers in England. Speaking of the growth of the Empire, he said as follows:—

"Rather more than a century and a quarter ago, the two principal English speaking folks divided and went their separate ways. In 1776, both the British and the American peoples were small in number compared with the French, and, what are now called the Germans. There was not such a great difference in population between England, Scotland and Ireland, and what are now the United States, as is generally supposed. The area of their territories has since vastly increased. The great business combination of nations, known as the British Empire has eleven and a half million square miles, and a population of four hundred and ten millions. The United States and dependencies have three and a half million square miles, with a population of one hundred and ten millions. Both Empire and Republic have spread out in ways quite unforeseen in 1776. Both have developed interesting progresses, which it is interesting to compare.

"My only claim to your patience in this matter is, that I have had the pleasure of visiting most parts of the world, including every province of Canada, except one, and some forty of the United States, not merely as a globe-trotter, but as a newspaper man, a professional investigator in other words, and as a friend.

Slow to Expand.

"The Americans were somewhat slow to expand at first, but finally they set out to conquer the middle-west, and simultaneously began to produce the first real Americans, as distinct from European colonists, of whom, in my opinion, Lincoln is the prototype. They carried their conquests and civilization as far as the Pacific, and they did not flinch from a blood-thirsty civil war to maintain their principles and their unity. They rivetted their hard-won enterprises by wonderful railways beside which the railways of Great Britain are necessarily but toys. Since then they have added to their possessions islands in the West Indies and the Pacific. They have been as active at home as we have been in the remoter parts of the earth, and at the same time they have produced all sorts of labor-saving machinery, yet to-day there is work and to spare for all their hundred millions of people, thanks to their opening and cultivation of new territory.

"It is too early to say whether they are producing a composite American type or not. Physically, I do not think so. Mentally, there is an alertness in the whole people, whether you find then in Southern California, in Maine, in Oregon or Georgia. Alertness is the note of the American character.

John Bull Has Done Well.

"It is not only in size and people that your partner, John Bull, has done well. His business like his figure is a solid one. His international and financial ranking were never so high. He is the great lawmaker, ship-owner, ship-builder, cotton and wool spinner and controller of the world's banking and much of the gold supply and diamonds.

"You are aware that recently the whole world was shaking with financial trouble, as a result of the horrible war in south-eastern Europe, a war that was little understood over here. You will realize its effects, when I say that a highly organized nation like the German, was unable to raise a national loan. Yet our position in London was unimpaired; and John Bull pocketed German Canadian Pacific shares day after day, at 210 up to his great content."

HAWKESBURY BOARD AND PAPER MILLS INCORPORATED.

Special to Pulp and Paper Magazine.)

Ottawa, Canada, September 16, 1913.

One of the largest incorporations of past years is that which has been obtained by the Hawkesbury Board and Paper Mills, Ltd., at Ottawa this week. This company has been granted letters patent with the following incorporators: Messrs. Aubrey Huntingdon Elder, Samuel Thomas Mains, William Reuben Ford, Alfred Frederick Teulon and Eric James Church, of Montreal. It will be capitalized at $2,500,000, and its head office will be at Montreal. The firm will carry on the business of manufacturers of logs, pulp wood, pulp and paper of all kinds. Although the information is not official, it is understood that the company proposes to get its raw supplies for the manufacture of board from the existing pulp factories in the neighborhood of Hawkesbury, and that it proposes to manufacture 40 tons of pulp per day as an initial venture.

PROGRESS IN THE INVESTIGATION OF THE WATER POWERS OF BRITISH COLUMBIA.

The fourth annual report of the Commission of Conervation contains the report of its consulting engineer, Mr. Arthur V. White, respecting the work that was accomplished up to the close of 1912, in the Commission's investigation of the water power resources of British Columbia. As stated some little time ago, Mr. White and his men are at present engaged in a continuation of the undertaking.

According to the report no other province of Canada is confronted with the problems of adjusting so complex a water situation as exists in British Columbia. In the early "fifties," water rights and privileges for mining operations began to be taken up, and, subsequently, other rights and privileges were granted for irrigation in connection with the development of large agricultural areas. All of these rights are now represented by upwards of 5,000 water records, issued under various terms and conditions. In addition, there are others, given later, for water-powers. The applications for waters for all purposes are on the increase. The whole situation is a difficult one, and, until adjudication upon conflicting interests can be had, patience and consideration will be required on the part of the record holders, and caution, wisdom and couarge on the part of the administration. These problems are now being dealt with by the Provincial Government .

John Kennedy, of Montreal, the well-known authority on water powers and river levels, recently visited Kenora, Ont., to study the water power development there. It is understood that he has been acting for J. T. Jaeger and B. Nichols, Jr., of International Falls, in connection with the proposed establishment of a pulp mill at Kenora by the Backus interests, of Minneapolis, who have an option on the power site.

David Shamoroff, of Stroudsburg, Pa. is the petitioner in bankruptcy in the Analomink Paper Mill Company case and the receivers named by Judge Witmer are D. S. Gottesman and A. Bell, of Stroudsburg, Pa. The Court directed that an accounting be made of the affairs of the concern.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

Testimony in the case of the Eibel Process Company, of Boston, Mass., against the Remington Martin Company, of Watertown, N.Y., was taken at Green Bay, Wis., several weeks ago. The case has been in court two years, and is one of the biggest patent suits involving paper machinery in court in this country. A number of paper mill employers in mills in middle west were examined. Many thousands of dollars are involved in the suit, the charge being the alleged infringement of a patent granted to William Eibel, of Rhinelander, Wis. It is claimed the method of elevating the fourdrinier part of the paper machine has been infringed upon by the defendant company. A. B. Aldrich, of Boston, Mass., was the chief witness for the plaintiff. The defendant is represented by attorney Franklin Hough, of Washington, D.C. and Attorney C. Lyman, of New York City, represents the plaintiff. The testimony was taken before a court reporter and will later be submitted to the court.

* * * *

The Gran Lake Company, whose head office is in New York City has complained to the interstate commerce commission at Washington of the rate charged by the Maine Central Railroad on bag paper from Rumford Falls, Me., through New Brunswick to Woodland, Me. At the latter point it maintains a paper bag paper factory. The company purchases its paper from the International Paper Company at Rumford Falls. The road now charges 14 cents per 100 pounds. It was stated, whereas from Rumford Falls the same road charges but 7 cents on wrapping paper and paper bags for a haul of like distance. It was alleged that a reasonable rating on the bag paper should be no greater than 7 cents.

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The Dexter Sulphite Pulp and Paper Company at Dexter, N.Y. is installing new head gates in its power canal. The canal is being cleared of the accumulated debris and a concrete sea wall has been constructed on either side of the gates. This wall is built as a precaution against the trouble experienced last spring when the water passed around the gates instead of through them. Last spring the company was put to considerable expense by the absence of a suitable wall along this canal. The efficiency of the floodgates allowed the water to flood the residences in the section, thereby causing extensive damage to property. With the new gates completed this trouble will be prevented.

* * * *

The girls employed in the rag room of the Sterling Paper Company, at Dayton, Ohio, who have been out on strike for some weeks have adjusted their differences and all except six have returned to work. The strikers got into communication with superintendent Wilson and made arrangements to discontinue the hold-out. The girls voluntarily agreed to return and Mr. Wilson, in behalf of the company, offered them an increase. The strike continued for a solid month and it bore every evidence of a protracted hold-out. The girls, however, have expressed their contentment, and the superintendent said he believed there would be no further trouble.

The striking paper makers at the plant of the Aldrich Paper Company. at Natural Dam, N.Y., are still holding firm with no apparent end of trouble in sight. The company officials are reported as stating that the mill can be operated at any time with a full force of men in all departments and the union not recognized. The union men seem to have plenty of confidence in the ultimate success of the strike and are working quietly on the jobs they have taken up since the strike started early last summer.

* * * *

J. Hardy, of Jenkins and Hardy, 15½ Toronto street, Toronto, Canada, the secretary and treasurer of the Felt Manufacturers' Association, extended an invitation to the Associated Dealers in Paper mill supplies of New York to attend the meeting of his association which was held at Buffalo, N.Y., on September 16th, with a view to having the New York packers agree to a better grade of packings. The committee of the Associated Dealers say this is impossible, as they have more men outside of the Felt Manufacturers' Association who are willing to accept the present grade of packings. The committee, are consisting of Edward Smith of Thomas Smith & Sons, R. B. Atterbury, of Atterbury Bros. and Daniel Hicks.

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Myers & Goldsmith, attorneys for the American Paper and Pulp Association, together with other creditors, has filed a petition in bankruptcy against the Composite Board Company, manufacturers of pulp boards, with offices at 50 Church Street, New York City and factory at Niagara Falls N.Y. It is alleged that the Company is insolvent, made preferential payments of $1,000, and permitted creditors to obtain preference by legal proceedings. Judge Holt, of New York has appointed Jerome Koehler receiver with a bond of $1,000. It was stated that an offer of settlement is expected to be made. Myers and Goldsmith said that the liabilities are $10,000 and assets $70,000. The Company was incorporated on February 28, 1911, with a capital stock $250,000.

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Extra heavy shipments of woodpulp were reported in New York during the past month from Chicoutimi, Quebec. In nearly every case this pulp has been consigned to the Tidewater Paper Mills Company, of Bush Terminal, Brooklyn. The latest arrival was on the steamer Normannie which brought in 20,741 bales, or 4,717 tons.

* * * *

Press dispatches from Gadsden, Ala., announce the probability of a big paper mill there. According to the prsopectus of the Alabama Pulp and Paper Company, a million dollar concern to operate in Gadsden, $300,000 has already been subscribed for stock. When $800,000 is sold it is proposed to begin the construction of the plant. Practically all classes of paper, with the exception of news print, will be manufactured. Pulp wood, costing from $7 to $10 a cord in the North, it is said, can be secured at Gadsden at for $3 and $3.50 a cord. The plant will have a capacity of 60,000 pounds of paper and will employ 600 men.

OTTAWA NOTES

(Special to Pulp and Paper Magazine.

Ottawa, Ont., Sept. 29th.

The difficulty met with in getting space on boats to Britain for the export trade to the Old Country has been greatly increased of late by the Manchester ship canal strike in England which is rendering vessels very hard to procure.

There have been two more lumber fires since the one which destroyed J. R. Booth's mill with a loss of $100,000. One of them was another Booth fire, which started in the Fraserfield yard of that company but was fortunately extinguished before it had done more than $1,000 damage. Another blaze originated in the Great Ottawa Sash and Door factory but also did little damage.

That if the Railway Commission will approve an increase in rates they will extend their cartage systems at least till January 1 is the latest offer the railways have made the shippers since they announced the dissolution of the previously existing cartage companies to take place on October 1. The increase in rates which they propose amounts to half a cent per 100 pounds At present they deliver freight to and from terminals at 2½ cents per 100 pounds with a minimum charge of 15 cents. After October 1 they will, if the Railway Commission consents, charge the shipper three cents per 100 pounds with a minimum charge of 20 cents. The extension till January 1 will take care of the heavy fall and Christmas trade.

Although the water in the Ottawa River is fairly low on account of the long absence of rain little inconvenience is being caused to Ottawa lumber firms which use water from this stream and it is not anticipated they will have to curtail their present requirements very considerably. This is due to the fact that the two big conservation dams which the Canadian Government has built on the Upper Ottawa are this year for the first time working to their full extent. Still a third dam is being constructed at Lake Quinze which, when completed, will increase the storage capacity by about one-third. At the period of extreme low water some years ago only 7,000 cubic feet of water per second flowed over the Chaudiere while the flow at present is 24,000 cubic feet.

A narrow escape from being incinerated in the sawdust burner at the J. R. Booth mills was that of Police Constable George Finlay of Ottawa last week. The policeman was sent to the mill to quiet a disturbance created by some rowdies who were interfering with employes. He got into an altercation with some of them when he tried to make an arrest, was thrown by his opponents into the sawdust carrier and regained his feet just as the endless chain was conveying him into the mouth of the burner.

A Trade and Commerce Department compilation of figures showing Canadian imports and exports during the twelve months ending June show that Canada not only brought in a lot more pulp and paper but exported a much greater amount than in 1912. The total imports of paper and its manufactures for the twelve months ending June, 1913, amounted to $8,671,686 as compared with the 1912 showing of $6,806,707 $1,904,137 coming from the United Kingdom and $5,919,353 from the United States. The exports during the twelve months ending May of papers were $7,902,433 in 1913 and $4,080,362 in 1912. A total of $5,814,273 was sent to the United States and $521,118 to the United Kingdom. In 1913 there were exported wood blocks for pulp to the value of $7,162,220, or considerably more than the 1912 total of $5,848,298. All of this export was to the United States. The value of wood pulp exported in 1912 was $5,542,514 as compared with $5,180,635 in 1912, $873,237 of this being sent to the United Kingdom and 4.490,868 to the United States.

Whether Intercolonial Railway rates are to remain at the recent 10 per cent. increase put into effect by the minister of railways is a question. A strong protest was received a few weeks ago by the Government from the maritime boards of trade, pointing out that the true purpose of the Intercolonial Railway was not to accumulate a surplus but to keep its rates as low as possible.

LONDON WEEKLY LETTER.

London, Sept. 13, 1913.

The Cellulose market remains in a condition of "bluff." The Scandinavian Trade Journals, which are inspired, say that more money is being paid for forward contracts for sulphite and sulphate. Paper makers in Great Britain say, without any reserve that Swedish bleached and unbleached sulphite and sulphate are slightly easier if imported direct from Sweden, although they admit that the mills are not at all anxious to do business beyond 1914.

The market is in a condition of much uncertainty and a Gothenburg correspondent, writing on the 11th, said, "The chemical pulp market is undergoing little change, business is slow and the mills persist in stating that they will not do business except on their own terms, and the Swedish journal adds that as the Swedish makers have managed to hold their own during the slack time they will certainly now be able to maintain prices well through this year at least."

It is probable there will be no important change in the near future. British firms are content to await developments and the same condition of things appears to prevail throughout Scandinavia so far as pulp men are concerned.

The current prices are.

Prices c.i.f. Great Britain.

	£ s. d.	£ s. d.
Sulphite, Bleached	11 0 0	12 10 0
Sulphite, Easy Bleaching, 1st Quality	9 5 0	9 12 6
Sulphite, Easy News or Strong quality.	8 5 0	8 12 6
Soda. Unbleached, 1st Quality	8 5 0	8 10 0
Soda, Unbleached, Strong quality	7 15 0	8 5 0
Kraft.	8 0 0	8 5 0

"Long Ton"	"Short Ton"
$53.63—$60.94	$47.88—$54.41
45.09— 46.92	40.26— 41.89
40.22— 42.05	35.91— 37.54
40.22— 41.11	35.91— 37.00
37.78— 40.22	33.73— 35.91
39.00— 40.22	34.82— 35.91

PARTINGTON WILL CUT ON THE NASHWAAK.

The company, contrary to reports made, will cut on the Nashwaak river this winter. Report had it that owing to the fact that the company had a great quantity of logs held up on the Nashwaak last winter that it would not cut there the coming season, but Mr. Jones says that such a report is erroneous.

Operators in the woods in this section are finding it difficult to get a sufficiency of pulpwood cutters. The pay offered is $1.75 a cord which is higher than usual but that does not appear to be a sufficient attraction—at any rate cutters are reported to be in great demand.

TO EXPLORE LABRADOR.

Sir William Mackenzie has financed an exploration party, headed by R. J. Flaherty, a Toronto mining engineer, to make a thorough exploration of Labrador, and report on its mineral, water power and timber resources. The party has already sailed under the command of Capt. Bartlett, a nephew of the famous exploration navigator Capt. "Bob Bartlett."

PULP AND PAPER NEWS

The American Viscose Company are now using 2000 tons a year of sulphite pulp to manufacture with artificial silk.

R. J. Ward, Secretary of Spanish River has resigned and Thomas Gibson, director of Lake Superior Company fills the place.

E. P. Lindsay of Boston, sales manager of the Brompton Pulp and Paper Co., East Angus, Quebec, spent a few days in Toronto and Montreal last week on business.

E. H. Wilkinson, of Toronto, formerly Ontario representative of the New Brunswick Pulp and Paper Co., Millerton, N.B., has returned from an extended trip to England and Scotland.

Arthur Spurgeon, genearl manager of Cassell & Co., Limited, London, England, one of the greatest publishing houses in the British Empire, spent a few days in Toronto and Montreal last week.

The Paper and Pulp Makers' Directory, of Sweden, Norway, Denmark, and Finland for 1913 is now out by Hugo Bursewitz Gothenburg, Sweden. It is the second English edition and very complete.

The Industrial and Educational Press, publishers of the Pulp and Paper Magazine will start a new paper called "The Canadian Fisherman." There is a wide and needy field in this industry for the services of a good journal.

Bradshaw's Limited, Toronto, producers of waxed paper, intend going into the business of furnishing waxed paper for bakers in addition to the lines that the company already are engaged of supplying wrappers for the gum and candy trade.

H. B. Hart, managing director of the British-American Wax Paper Co., Toronto, is on an extended business trip throughout the prarie provinces. The company in addition to their other lines, will shortly place on the market paper milk bottle caps.

Construction is proceeding rapidly on the new warehouse of the Victoria Paper and Twine Co. of Toronto, which is being erected on Wellington Street west. It is expected that the building will be completed and ready for occupation by March next.

Mr. K. G. Wilen, Associate of Manchester School of Technology, chief chemist for the Canada Paper Co., Windsor Mills, Que., was married on Sept. 22. The ceremony took place in St. George's Church, of England, Montreal, with the intimate friends present.

Quarterly Publications, Limited, has been incorporated in Toronto with power to carry on the business of printing, publishing, engraving, etc., in all its branches. The capital stock of the company is $40,000 and the incorporators are Fred H. Richardson, W. H. Moore, F. W. McGill, Charles P. Smith and Jas. D. Conklin, all of Toronto.

The shipments of pulpwood from Timiskaming and Northern Ontario points during the month of August totalled 66 cars containing 965 cords as compared with 49 cars containing 654 cords for the corresponding month of last year. During July this year the shipments were 92 cars containing 1,407½ cords.

Twenty-six cars were shipped to the pulp mill at Latchford while 33 cars were shipped from this company to Niagara Falls, N.Y. Six cars went to Thorold while one car was sent to Port Huron. Exclusive of Latchford, the only point shipping more than two cars was Charlton, which sent out 11 cars to Latchford.

The Lake Superior Corporation has awarded the contract to the Soo Dredging and Construction Co. at Sault Ste. Marie, for deepening the power channel of the Lake Superior Co. from eighteen to twenty-four feet, at a cost of $300,000. The work is preliminary to a general extension of some of the company's industries, at an expense which will aggregate several million dollars.

It is reported that the Abitibi Pulp and Paper Co. on whose 150 ton ground wood mill at Iroquois Falls, Ontario, excellent progress is being made, have decided to erect next year a 200 ton news print mill and that this decision was reached as an outcome of the recent adoption of the tariff bill at Washington, which removed all duty on pulp and paper entering the United States whether from Crown or freehold lands.

Another large paper mill is rumored for Lake St. John district. The British Industrial Company, of Ottawa, which is backed by English capital, has decided to erect a large plant on the Ashuapmouchouan River, which is the chief tributary of Lake St. John, and along which the Canadian Northern Railway is now extending its Roberval branch. The British Industrial Company already owns timber limits on the Salmon River.

The Riordon Pulp and Paper Mills Co., Limited, has declared the usual quarterly dividend of one and three-quarters per cent. on the preferred stock of the company. The Toronto Paper Manufacturing Co. has declared a quarterly dividend at the rate of eight per cent. on the common stock of the company. Smart Woods, Limited, last week voted a dividend at the rate of seven per cent. for the past quarter on the preferred stock of the company.

Daniel Daverin has assumed his new duties as superintendent of the Montrose Division of the St. Lawrence Paper Mills at Thorold, Ontario, succeeding C. F. Redmond, who has resigned and will take a rest for a couple of years. Mr. Redmond intends leaving in the near future for California. Mr. Daverin was lately with the Miami Paper Co. of West Carrollton, Ohio, and previous to that was in the service of the Nashua River Paper Corporation at East Pepperell, Mass., and the Bryant Paper Co., Kalamazoo, Mich.

The Riordon Pulp and Paper Company has 400 square miles of timber limits in Northern Quebec on the Quinze and Lake Expanse, which can all be cut and driven to the proposed pulp mill on Lake Timiskaming at Haileybury. This represents about 256,000 acres. Far more important to the district at large, however, is the fact that there would be about 15,000 square miles tributary to the mill, from which pulpwood could be cut and driven, according a market for the first fruits of settlers in Northern Quebec amd Northern Ontario.

The Alberta and Eastern British Columbia Press Association at its annual meeting in Edmonton, recently decided to merge into the national organization known as the Canada Press Association as a branch of that body. The consolidation of the various press associations of the Dominion is now complete. Through the permanent secretary, John M. Imrie, of Toronto, the News Print Committee of the Association is gathering statistics from the various mills in Canada relative to the output in rolls and sheets, which will be furnished to the members.

The Electrical Development Co. of Toronto, of which Sir William Mackenzie is President, has entered into a contract with the Baltimore Utilities Co. to export 46,000 horse power across the international boundary at Niagara Falls. The Electrical Development Co. is now developing at the Falls 125,000 horse power, of which Toronto is taking 50,000 and, after 46,000 horse power is exported, there is a balance of 29,000 horse power still available. The various power companies at the Falls are allowed to export only fifty per cent. of their total production.

The London House, of Messrs. Boving & Co., Limited, have received contracts for the whole mechanical equipment of a large French Paper Mill at Besancon, France, and another one for India. These mills are to be equipped with the Antoine Save Alls, reclaiming 95% of all the waste fibres of the mill. This Save All is a specially designed cone with a automatic circulation, in which all the waste fibres are concentrated and directly taken along the stock flowing on the apron. Every paper machine is to be connected with such a Save All, whilst the clear water is to be reused. The Antoine Filter is largely in use in France and Europe and is put on the market and manufactured for Canada and the United States by Messrs. Boving & Co., of Canada, Limited, Toronto, A special feature of this Save All is that it requires neither power nor felts.

At a meeting of the creditors of the Dryden Timber and Power Co., of Dryden, Ontario, which was held last week in Toronto, the Referee, George Kapplre, appointed D. L. Mather of Winnipeg, President of the Company as permanent liquidator. The company will be reorganized and the liquidator was authorized to borrow the sum of $200,000 to continue operations of the company. The Union Trust Co. of Toronto is taking proceedings to foreclose a mortgage of a million dollars on the property, being trustees for the bond holders. J. B. Beveridge will continue as manager of the Dryden Co. and operations are being carried on to the fullest extent during reorganization. It is expected that, in a few months, the affairs of the company, which started to make sulphate pulp and building paper a few months ago, will be placed on a sound footing. About forty tons of building paper daily will be produced and the market for this in the west is regarded as a good one. The company intends installing another evaporator in their sulphate plant of a capacity of twenty tons per day.

Lord Northcliffe, the widely known English publisher, spent a few days in Montreal and Toronto last week. In Toronto he gave an instructive address before the Canadian Club, on "Newspapers." in which he lauded the press and stated that publicity was the greatest agency in the world for good or evil. Speaking of the forests of Canada he said the Dominion has been reckless in the past in the sacrifice of these forests and some of them had gone, never to return. However, the country has quickly realized its error and had demanded their replenishment. You may have, he added, the consolation that the paper from these forests, which passed across the ocean, has done much, when converted into newspapers, to make known to the old countries, your resources and your greatness. Lord Northcliffe has been invited to return in June next to adderss the National Association of Ad. Clubs, which will hold a monster convention in Toronto. Lord Northcliffe owns about four thousand square miles of spruce forests in Newfoundland, from which the mature trees only are cut. Owing to the excellent fire ranging system no serious forest fires have occurred this year. The mills of the Anglo-Newfoundland Co. ship each week to the Old Country for the publication of the distinguished journalist about 1200 tons of news print in addition to large cargoes of wood pulp.

PULP AND PAPER LEGISLATION IN NEWFOUNDLAND.

Among the principal acts passed by the Newfoundland Legislature in 1912 was the following relating to the establishment of the pulp and paper industry at Deer Lake:

The act confirms an agreement between the governor of this colony and the American-Newfoundland Pulp and Lumber Company, of Grand Rapids, Mich., and provides that all construction material and machinery for pulp and paper mills to be erected by the company shall be admitted duty free, and the property be free of municipal taxation. Under the agreement the Government, on the surrender of certain leases of timber lands by the company, agrees to give one single lease for a term of ninety-nine years, and also the right to raise the waters of Deer Lake, and to use the waters of Junction Brook and Humber River so far as it legally may, in connection with the pulp and lumber mills which the company propose to erect on the Humber River, below Deer Lake. The usual provisions as to private rights, acquiring lands, arbitration, etc., are included in the agreement, and the company agreed to commence actual construction not later than May. 1, 1913.

NO REDUCTION IN OCEAN FREIGHT RATES.

Mr. H. F. Drayton, chairman of the Railway Commission, has resumed his duties at his office here after two months' absence across the Atlantic. Mr. Drayton was officially deputed by the Government to interview the Imperial authorities with a view to securing their co-operation in regard to the proposal for a joint international-control of Atlantic freight rates. He will present his report on the question to the Government within a few days. Meanwhile he will make no public statement as to the results of his inquiries.

It is learned, however, from an authoritative source that Mr. Drayton received little encouragement in England as to the feasibility of the control of ocean freight rates. The proposal was made three years ago to the British authorities, but the response was to the effect that the practical difficulties in the way of securing anything like adequate control over the Atlantic steamship companies were such as to put the whole matter out of the range of practical politics at present.

Mr. Drayton, it is understood, got the same answer last month. His interviews with the steamship representatives were equally unproductive of results. It is understood that the steamship men presented facts and figures to show that any substantial reduction of existing rates on Canadian Traffic was out of the question under existing conditions of limited return cargoes and cost of handling.

The opinion in Britain seems to be that the only efficient regulator of rates is competition and that it would be unwise for the Government to seek to enforce any arbitrary rates on ocean borne traffic. Without the co-operation of both the British and the United States Governments, the Govenment here, can of course, accomplish nothing.

DOMINION FORESTRY BRANCH DOINGS FOR JULY

Mr. R. H. Campbell, the Director of Forestry, is continuing his tour of inspection in the West, being at present in British Columbia, but expects to be home in the early part of September. During his absence Mr. T. W. Dwight occupies the position of Acting Director.

Mr. Lewis has returned from his trip to the Maritime Provinces, where he was gathering statistics for his bulletin on the Wood Producing Industries of these provinces.

The MARKETS

CANADIAN MARKETS.

The situaton in news print and all other lines of paper remains unchanged but the tone of business is gradually improving. Orders are coming a little more freely but not with the rapidity which many of the mills and jobbing houses would like to see. The demand for wrappings, kraft, paper bags and kindred lines is stronger but price cutting still goes on. The feeling of the trade is more encouraging and this month should witness an improvement in many lines. Ground wood is in pretty good demand and some orders for immediate delivery, owing to the low water on the other side of the line, are being filled. Reserve stocks are being cleared out and operations being carried on, on a larger scale by some mills, which have been handicapped by low water. The sulphite situation remains unchanged and prices are firm. There are no large stocks on hand. Building papers are in good demand since the bountiful harvest in the west where many structures were held up uutil the state of the crops was determined. In the rag and paper stock field mixed papers are more active and roofing material is a little stronger. Other lines have not yet started to move. On the whole the outlook in the paper and pulp arena is very good when financial conditions generally are taken into consideration. The recent passing of the tariff bill at Washington is welcome news to the trade and means that Canada will become one of the greatest paper and pulp centres in the world and, with a wise policy of forest conservation and judicious administration of the timber resources of the company, many new towns will spring up and existing plants will be operated to fullest capacity in supplying foreign demand.

Quotations f.o.b. Toronto are:

Paper.

News (rolls) $41 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $3.75 to $4.50.
Book paper (ton lots) No. 3, 4c. to 4.50.
Book paper (carload) No. 2, 4.25c.
Book paper (ton lots) No. 2, 4.50c to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3 7-10c. to 4¾c.

Pulp.

Ground wood (at mill), $15 to $16.50.
Ground wood, $21.50 to $24.50, delivered in United States.
Sulphite (unbleached), $43 to $46, delivered in Canada.
Sulphite (unbleached), $43 to $47, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $58 to $63, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft whit eshavings, $1.80.
No. 1 Mixed shavings, 60c.
White blanks, 97c. to $1.00.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 80c. to 85c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.15 to $1.20.
No. 1 print manilas, 65c.
Folded news, 50c.
Over issues, 52½c.
No. 1 clean mixed paper, 40c. to 42½c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.35.
No. 1 white shirt cuttings, $5¾ to $6.
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.75.
Black linings, $1.75.
News light flannelettes, $4.80.
Ordinary satinets, 75c.
Flock, 90c.
Tailor rags, 65c. to 67½c.

Quotation f.o.b. Montreal, are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book papers, carloads lot, No. 3, 4⅛c. to 4½c.
Book papers, broken lots, No. 3, 4¼c. to 4¾c.
Carload lots, No. 2, 4¾c.
Manila B., 3¼c. to 3½c.
Broken lots, No. 2, 5c. to 5½c.
Carload lots, No. 1, 5¼c. to 6¼c.
Broken lots, No. 1, 6¼c. to 6¾c.

Pulp.

Sulphite Easy Bleaching, f.o.b. Montreal, $44 to $45 per ton.
News quality, f.o.b. Montreal, $42 to $43 per ton.
Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4.00 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $16.00 f.o.b. Montreal.
Ground Wood, No. 2, $22 to $24, delivered United States.

Wrappings.

Fibre, 4c. to 4¼c.
No. 2 manila, 3¾c. to 4c.
No. 1 manila, 3½c. to 4½c.
Kraft, 4c. to 4¾c.

NEW YORK MARKETS.

(Special to Pulp and Paper Magazine)

New York, N.Y., September 25, 1913.

Though arrivals from the local port during the past fortnight have been quite heavy in chemical pulps, they have passed immediately into consuming channels and very few supplies are reported on the dock. New business is decidedly slow, and trading at present is confined chiefly to withdrawals on old orders. Makers abroad are making offerings daily, but at prices that do not appear to coincide with the American consumers. It is the consensus of opinion that as soon as the new tariff becomes a law, business will pick up in a good way, and that foreign producers will greatly reduce their prices. Quotations are now being made on a basis of ex duty only, but even this duty concession does not seem to tempt the consumer. Many of the mills report that they are pretty well contracted for over the balance of this and next year and can afford to wait developments. If this be the case with all of them, it is more than likely that the foreign makers will have to come down in their prices if they wish to compete with the domestic chemical pulp manufacturers. The decision of the Treasury Department during the past week that Belgium and Denmark were entitled to the same privileges as Canada and the other countries enjoying favored nation treaties, does not have much effect upon the market, as only about one per cent of the importations of pulps come from these countries.

Reports from all sides tell of extreme low conditions, and in consequence grinders of mechanical pulp have been operating machines on a very light basis. Stocks on hand at the consuming mills have been greatly depleated and many users have been skirmishing around in their endeavors to obtain additional supplies at reasonable rates. With the prevailing strong demand, quotations are being firmly adheared to and in many cases premium levels are being asked. Makers of mechanical pulp who sell their stock only state that though they have sufficient supplies on hand to meet the requirements of the paper mills for some time to come, they do not intend to accept prices that are not in keeping with thes season of the year. This situation will probably continue until heavy and protracted rains swell the rivers and streams sufficiently to allow users to do their own grinding.

The market for paper stock is at last beginning to reflect a very strong undertone. The activity at the board mills has caused many of them to seek additional supplies, but packers have incidently raised their prices gradually, and the tendency is still upward. Good packings of hard White Shavings are now obtainable in the local market at 1¾c. to 2½c., Soft White Shavings at 1¾c to 2½c., Ledger Stock at 1½c. to 1¾c., White News at 1c. to 1¼c., Old Manilas at ½c. to ¾c., New Manila cuttings at 1c. to 1¼c., Strictly Overissue News at ½c. to ¾c., Strictly Folded News at 60c. to 70c., No. 1 Mixed at 40c. to 50c., while common papers rule at 35c. to 40c. per 100 pounds. The lower or common grades in particular are in the demand, and prices here are jumping up daily. The foregoing, however, gives a fair idea as to how the market stands.

Pulp.

Ground Wood, No. 1, $19 to $23 per ton, f.o.b. mill
Ground Wood, No,. 2, $17 to $19 per ton, f.o.b. mill.
Unbleached Sulphite, domestic, 2c. to 2¼c. per pound, delivered.
Unbleached Sulphite, foreign, ex duty, 1.90c. to 2¼c. per pound, en dock. N.Y.
Bleached Sulphite, domestic, 2.90c. to 3c. per pound, delivered.
Bleached Sulphite, foreign, ex duty, 2.70c. to 2.95c., per pound, en dock, N.Y.
Easy Bleaching Sulphite, foreign, ex duty, 2.15c. to 2.25c. per pound, en dock, N.Y.
Unbleached Sulphate, foreign, ex duty, 1.90c., to 2.10c. per pound, en dock, N.Y.
Bleached Sulphate, foreign, ex duty, 2c. to 2.80c. per pound, en dock, N.Y.
Kraft Pulp, foreign, ex duty, 2c. to 2.10c. per pound, en dock, N.Y.
Soda Pulp, domestic, 2.15c. to 2.25c. per pound, delivered.

Paper

A thorough canvas of the local paper trade by your correspondent, both among the manufacturers who have headquarters here, the salesmen and representatives visiting the trade and the principal jobbers, shows that business is now rapidly assuming more normal proportions. It is the common opinion among all interested in the industry that as soon as the pending tariff is settled and becomes a law general conditions will be greatly benefitted and trading in paper lines in particular will reflect a much higher volumn. Business during the past summer has been extremely light, due chiefly to the uncertainty over the tariff, but everyone now seems to think that the future promises much in the sale of almost every commodity. Jobbers at present are having a steady call for all lines, and many of the larger ones are now working their forces overtime in order to fill belated orders. This in turn is causing them to buy heavier at the mills. During the past week more men from the mills have visited the local trade than in any preceeding week since the early part of the year. This is sufficient to say that business is good at the mills. New contracts for news print are reported daily and though competition is very keen and prices are inclined to be weak, no confirmation can be had of any particular concern underquoting. Book papers are moving in a very satisfactory way. Krafts are keeping pace with the general movement, with many mills far behind in their deliveries. Tissues are very strong at the advances of last month, and it is thought that the fall will witness a very good inquiry in all grades. Manilas continue to reflect a steady and firm tone. Mills making them are suffering for lack of water, but they appear to have sufficient supplies on hand to tide them over for some time to come. Prices on boards are strengthening daily under the influence of a very good demand. All lines are in steady inquiry and it is the common opinion that values will be greatly increased before the end of next month. Quotations throughout the list are being firmly maintained, and with several other changes, they are repeated, as follows:

News, rolls, transient business, $2.00 to $2.10 f.o.b. mill.
News, rolls contract renewals, $1.95 to $2.05 f.o.b. mill.
News, sheet, $2.10 to $2.15 f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20 f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90 f.o.b. mill.
Writing paper superfine, 11c. to 13c., del east of Miss. River
Writing paper, extra fine, 10½c., del. east of the Miss. River.
Writing paper, No. 1, fine, 9c., del. east fo the Miss. River.
Writing paper, No. 2, fine, 8c., del. east of the Miss. River.
Writing paper, engine sized, 4½c. to 8c., del. east of Miss. R.
Bond paper, 6c. to 24c., delivered east of Mississippi River.
Ledger paper, 8c. to 30c., delivered east of Mississippi River
Linen paper, 7c. to 18c., delivered east of Mississippi River.
Manila jute, 4¾c. to 5¼c., delivered.
Manila, wood, $2.40 to $3.00 delivered.
Kraft, No. 1, $3.65 to $4.00, f.o.b., mill.
Kraft, No. 2, $3.25 to $3.50, f.o.b., mill.
Screenings, 1¾c. to 2⅛c., delivered.
Boxboards, news, $30 to $33 per ton, delivered.

Boxboards, chip, $28 to $31 per ton, delivered.
Boxboards, straw, $29 to $31 per ton, delivered.
Wood pulp board, $42.50 to $45 per ton, delivered.
Tissue, white, cylinder, 45c. to 47½c. delivered.
Tissue, fourdrinrie, 47½c. to 52½c. delivered.
Tissue, jute manila, 52½c. to 55c., delivered.

THE BRITISH MARKETS.

(Special to Pulp and Paper Magazine.)

London, Sept. 20, 1913.

During the past couple of weeks there has been considerable slackness in the paper trade of the United Kingdom, but this is not looked upon as very serious, as the holidays in September usually upset business after which there is a rush of orders. Agents in London are consequently, at the moment, eager for new business and there is keen rivalry in all the cities. Most of the mills are kept going with the orders on their books, but certainly a little more briskness would be gladly welcomed. High class papers for art work are in good demand, and the business done in newsprint and packings and wrappings is also considerable.

* * * *

There is a good enquiry for mechanical pulp for next year, and though prices have not advanced as yet in London it is reported from Scandinavian sources that sellers are obtaining slight concessions, which may be accounted for by the fact that pulpwood is costing more in Norway and Sweden than was the case last year. A serious time is predicted next year for mechanical owing to the scarcity of timber and the rising prices of it, and one firm in Norway is said to be going out of the trade shortly owing to the continuous advance in log prices, which is hampering Norwegian industries. Then again the demand in the States for Canadian mechanical will push up Scandinavian prices. Quotations are about as follows in London (c.i.f. London, Manchester, Preston and Granton):

Pine, 50% moist, unwrapped....	$ 9.30 at $ 9.60
Pine, dry	20.00 at 20.90

About $1 extra is charged for forward delivery.

* * * *

Business still keeps dull in the chemical pulp market and stocks at the mills are not.. to say, very large for this time of year. To encourage business prices are inclined to show a tendency downwards in London. Consumers that are covering themselves at the moment for forward deliveries are following a wise course, as the settlement of the U.S.A. revised tariff will see a big advance before many months have elasped Norwegians and Swedes report that strong attempts have been made to brake down the firm position of sellers, but in only a few cases were concessions gained and these related to prompt shipments. Prices in London (c.i.f. London, Manchester, Preston, and Granton) should be noted as follows at the time of writing:—

Bleached Sulphite..............	$52.50 at $60.00
Sulphite Easy Bleaching (No. 1 quality)..................	47.00 at 49.40
Sulphite News (strong quality)...	38.00 at 39.00
Unbleached Soda No. 1.........	38.10 at 40.00
Unbleached Soda (strong).......	37.00 at 38.00
Soda Kraft....................	38.00 at 39.40

The chemical markets are showing activity. Bleaching powder is unchanged in price and moving with considerable freedom. Ammonia alkali, caustic soda, soda crystals and salt cake are in fair request and quotations unchanged since last report. Rosin has jumped a couple of cents for most grades owing to the high freights, whilst the demand for sizing is slow with prices unaltered. China Clay is very scarce and likely to remain so for sometime.

The demand for wastepapers and rags for paper pulp is somewhat slow now, which is accounted for by the slackness in most of the mills. During the past four weeks 350 bales of rags were exported from here to Canada, whilst the imports from Canada reached 507 bales.

* * * *

The export trade is keeping very quiet, but good shipments are arriving when compared with last year. Quotations are firmly maintained as rates of freightage have much advanced and tonnage is difficult to secure.

NEW MARKET FOR CANADA.

Trade Commissioner Sees Big Opportunities in Cuba.

Ottawa, September 29.—That the Island of Cuba affords a splendid market for Canadian exports of almost all kinds was the statement made by Mr. A. T. Quillez, acting trade commission for Canada at Havana.

Mr. Quillez, who has represented the Department of Trade and Commerce in Cuba for the last two years, was in Ottawa today, and had an interview with Hon. Geo. E. Foster, minister of trade and commerce. He is on leave of absence and his visit here is not an official one, but the information which he conveyed to the department was nevertheless interesting and of considerable importance. The Cuban tariff is to some extent discriminatory in favor of the United States, chiefly in regard to manufactured articles. Mr. Quillez nevertheless believes that there is a market in Cuba for Canadian commodities of nearly all classes represented in the present Canadian export list. Mr. Quillez is a Cuban by birth and this is his first visit to Ottawa.

CHEMICAL PULP PRICES IN 1913 AND 1914.

A general comparison of quotations as they exist today and the corresponding period two years ago follows:

Foreign.	1913	1911
Bleached Sulphite, ex dock ...	$2.75 at 3.00 net	$2.60 at 2.90
Unbleached Sulphite, ex dock.	1.90 at 2.15 net	1.85 at 2.10
Easy Bleaching Sulphite, ex dock..................	2.15 at 2.30 net	1.90 at 2.05
Bleached Sulphate, ex dock...	2.35 at 2.75 net	2.50 at 3,25
Unbleached Sulphate, ex dock.	1.75 at 1.95 net	1.75 at 2.25
Kraft Pulp, ex dock........	1.85 at 2.05 net	1.90 at 2.10
Domestic—		
Bleached Sulphite, delivered..	2.90 at 3.00	2.50 at 2.75
Unbleached Sulphite, delivered	2.10 at 2.15	2.00 at 2.05
Bleached Soda Pulp, delivered	2.15 at 2.25	2.20 at 2.25

SULPHITE SPIRIT AND ARTIFICAL SILK.

The artficial silk factory at Sarvar, Hungary, which works the Chardonnet process, and uses 10,000 gallons of spirit weekly, is about to attempt to induce the Hungarian wood pulp makers to make sulphite-spirit by the Ekstrom and Wallin method, and is negotiating with the local Chancellor of the Exchequer with a view to obtaining exemption from duty of spirit when used for the manufacture of artificial silk.

The "Svensk Papperstidning," in commenting on this item of news, suggests that as so much sulphite-pulp is made in Sweden there ought to be an artificial silk factory attached to every pulp mill, so that the sulphite-spirit could be made and used on the spot without any charged for freight. Once sulphite spirit obtains a field of use on a large scale, there will soon be plenty of it, and the vexed question as to which is the better of the two present methods of preparing it will soon be set at rest, if, indeed, a method better than either is not quickly discovered.

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EFFICIENCY OF THE YARD CREW.

Study, unobserved, the yard crew round any mill and you will, in all probability, find that most men in the crew are slow moving, indifferent fellows trying to get the work they have to do to spin out as long as possible and only working enough to escape censure in case any of the "bosses" should approach.

Many of these same men you will find, after their work is finished for the day, working hard round their homes. He tries to make the best out of his time, tries to arrange things so that he can get the most possible done in the shortest possible time, in fact, sometimes does more actual work in two hours than he did the nine to ten hours he was pretending to work at the mill.

Here is something wrong!

The remedy is to make the men interested in their work by giving them piece work or bonus. You may say that our working man is not used to and would object to this scheme and that your time keeping system would not serve its purpose if you introduced this system. This may be true to some extent, but it can be overcome.

Russians, Polanders and even Southern Italians, the class of people that we consider the laziest can be taught to understand the good of a bonus system by which they gain as much as their employers and so can our native working men.

Let them thoroughly realise that they will gain just as much as you and never ask them to do the same work when only on daily wages.

As for the time keeping system, this should be suited for the work, not the work for the system.

When piece work is given every man concerned should share in it and the time expended deducted on the punch cards. Where teamsters are interested as well they should share in the piece work but at extra pay for the overtime they have to work with their teams and should have to work on a load limit to spare the horses.

Bonus of a certain amount per hour they shorten the time used for a given job can also be given the men instead of piece work. This will to some extent lessen the work for the time keeper.

A piece work or bonus record should be kept by the yard foreman stating for each job details of date, name of workmen, discription and quantity of work performed, time expended and time limit, price per piece or for the work or hourly bonus.

It should always be borne in mind that the working man should have as large a profit by bonus or piece work as his employer, if not so he will most likely object to the scheme.

One thing that the piece work does away with is the underforeman who usually draws higher wages than his fellow workmen and who, though supposed to work himself as well as keep his fellow workmen at work, usually wants to stand on a better footing with them than with his "boss" in order to be able to be so much the lazier himself when his "boss" is not present and consequently has little or no control over the men he is in charge of.

Another thing is that you will soon get rid of inefficient men as the bonus men will object to work alongside men who can not keep up with them.

To make it possible for the yard foreman to judge the time necessary for a certain work and arrange proper piece work or bonus, he should be in close touch with the cost clerk from whom he should get detailed information as to cost and time used for the different jobs. Where a detail cost sheet is not made out, this ought to be done for some time, say one year, previous to commencing the bonus or piece work system, so as to have detail figures to base the system on.

Price for piece work and bonus should be carefully considered but once given they should be stuck to, unless it can be plainly proved to the men that there is an absolute loss to the employer.

Whatever you do, stick to an agreement with your men, even if you find that they make a high income, that will give them confidence in you and will make it easy for you to come to terms with them when a new kind of work turns up.

The men will also stick to their jobs and there is no doubt that a man, used to the different work round the mill are far more efficient than green hands.

New Paper Machinery.

The Drammen Paper Mills, Ltd., Drammen, Norway, is putting in three new paper machines of which one especially for tissue paper. This machine will be 95 inches wide and is to be built by the Jonkoping's Machine Works, Jonkoping, Sweden.

MILL FOR SALE.

The undersigned, on behalf of the receiver appointed by the trustees of the debenture holders of the Western Paper Mills, Limited, hereby gives notice that tenders will be received up to and including the fifteenth day of October, 1913, for the purchase of the said company's premises, plant and undertaking, consisting of a fully equipped paper mill in running order, operating an eighty-four inch four-cylinder machine, situated on the line of the Great Northern Railway near Vancouver, B.C. The mill has been in operation fourteen months making board, sheathing and wrapping papers. The highest or any tender not necessarily accepted. For further particulars and conditions of sale, apply to James F. Garvin, care British American Trust Company, Limited, 198 Hastings Street West, Vancouver, B.C.

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TARIFF

OUR esteemed contemporary "Paper" takes strenuous exception to our view expressed in September 15th issue of the "Pulp and Paper Magazine" that Section 2 and the Reciprocity Act should still be enforced even since the new tariff has gone through. Canada is so accustomed to having biased and prejudiced views taken and even at times enforced that we do not wonder that every straw seems to offer an opportunity to grasp at. Why, for example, should Section 2, which was enacted into law by American Congress, not hold unless indeed the argument, oft quoted in this country during reciprocity campaign holds good, that we cannot depend upon American legislation to hold any degree of permanency. Suppose, for example Canada had accepted the reciprocity act and, instead of lowering the tariff Americans had further stiffened it, would they expect Section 2 to be so soon eliminated from the statutes? We cannot see why, as long as it is on the statute books, it is not a law of the American people. We are accustomed in this country to regard anything passed by our legislators as law until the same is repealed. This we must insist is the sane and reasonable view and we cannot see why there should be any question as to Section 2 holding for importations which chose to enter the United States market under its provisions.

Very interesting views have recently been advanced by various papers in this country as to the real benefit to be secured from the new American tariff. The Financial Post of Toronto, for example, rather doubts that Canada will reap any immense benefit from the concession. A number of prominent men have expressed their views that the stimulus to trade will not be as enormous as many insist. Mr. T. J. Stevenson, sales manager to the Riordon Pulp and Paper Company states that as finally submitted the clauses of the tariff bill having to do with pulp and paper would have a good effect in Canada, for they would remove the impression that there was any desire in the United States to penalize Canada. "I do not think," he said, "that the bill will have the effect of any immediate impetus to the pulp and paper trade here, though undoubtedly in the long run its effect will be beneficial. I think we can dismiss the stories about big American firms being ready to transfer their plants to Canada lock, stock and barrel, if Canadian pulp and paper is admitted free to the United States. The principal effect of the bill in the Canadian trade will be to remove the inequalities between holders of private and holders of Crown lands pulp wood. The latter will effect a saving in the duty. This duty formerly came straight out of their pockets, since they had to sell at the same price as holders of private lands pulp wood whose products were admitted free."

The view of the Canada Paper Company is expressed as follows:—

Mr. H. B. Donovan sales manager of The Canada Paper Co., stated that the change in duty did not affect them either, as they had been shipping duty free. "I can easily see where free trade may injure us though," he added. "With the duty removed there is nothing to prevent United States becoming the dumping ground for foreign newsprint paper. And with the cheap water rates and relatively low wages—in many cases labor-cost figures at one-third ours—I can see where we will be up against very serious competition. Importation from other countries now free may seriously affect our market in the States."

Mr. Watson of the Spanish River and Toronto Paper Companies says:—

"As a result of a recent appeal our papers enter the United States free anyway. Of course, now there can be no question of our products entering free.

"If anything we had a slight advantage before. This has been taken away, and we are now on the same footing as all Canadian companies. We are close to the markets of the Western States, though, and can well compete with companies located in Quebec, because of the heavy saving in freight, due to our shorter haulage."

There is no doubt that the paper industry will materially benefit, but it is absolutely certain that the claims of the American paper manufacturers will not be substantiated and that there will be no immediate and astounding transfer of paper manufacturing plants from the United States to Canada.

THE FIVE PER CENT. REBATE.

The most actively discussed point in the new American tariff at the present moment is the 5% rebate on imports brought in by American vessels At the time of the discussion, the real facts of this were overlooked by Congressmen and outsiders alike. It now appears, after careful investigation by Treasury and State departments, that the same concessions will have to be given to practically all nations doing any appreciable trade with the United States except Russia, Brazil and France. It is fairly certain that the only satisfactory redress for this will be its repeal. An analysis of this shows that it will effect Canadian pulp and paper materially although some commodities will benefit. Most of the items entering the American market in any quantities by the Atlantic water route are on the free list, but the trade in the Great Lakes will doubtless be greatly stimulated. But the point which effects paper shipped from Canada and not on the free list is that all competing papers from Sweden and England, such as kraft or other papers over 2½ cents per pound, will enjoy a rebate of 5%, while our papers, all of which in this class are shipped by rail, will not come under this clause. It is true that the bulk of our exports will not come under this, but there are sufficient, chiefly in the wrappings, to make the point worthy of consideration. A difference of 5% favoring a European importer with a water route would be quite a handicap. The present indications, however, as mentioned before, point to the recall of this clause which, under present circumstances, will handicap somewhat a few of our mills on some grades.

THE VALUE OF PUBLICITY.

There has never been an age in the history of the world when publicity played so large a part as it is doing at the present time. Every day instances are cited of men and business succeeding through publicity and on the other hand the records go to show that other business and men fail because of their failure to make use of publicity. The remarkable feature about advertising is that it can be applied to every line of human endeavor; the banker, the broker the insurance agent, merchant, manufacturer, commission agent and everyone else can build up his business by judicious advertising.

A few weeks ago, the announcement was made that the American Locomotive Company had decided to discontinue the manufacture of their motor trucks. This came somewhat as a surprise to the business world as the American Locomotive Company was in a position to manufacture trucks more economically than most manufacturers. Their decision to discontinue also came at a time when the demand for motor trucks was on the increase and was all the more surprising because the company were manufacturing a good line of cars. The truth back of their decision to cease manufacturing motor trucks has just now been made public and had to do with their lack of advertising. The company, it seems, decided to manufacture a good car, one, as they expressed it themselves "which would sell on its merits." They did not propose to spend any money in advertising. Their car was undoubtedly a good one and at the outset attained prominence. The Company, however, neglected to advertise it and a few weeks ago decided to discontinue its manufacture. This venture on the part of the American Locomotive Company and their decision not to advertise cost them over $7,000,000. In contrast to this, it is only necessary to turn to some of the Automobile Companies whose machines are household words because of judicious advertising. These companies are making phenomenal strides.

One other example of what advertising will do follows:—In a little town in the Western States, three banks were in business, all of which were regular advertisers. A short time ago, the three managers got together and entered into a "Gentlemen's Agreement" to discontinue all publicity. They believed that there was a fixed amount of business to be divided among them and that each institution had been advertising merely as a matter of self-defence to holds its share of the general business. In other words, they agreed to a policy of general disarmament. At the end of the first fiscal year following the discontinuance of the advertising, it was found that deposits of the three banks in that town had fallen off 21%, while their combined profits had fallen off 12%. Following this discovery the "Gentlemen's Agreement" was dissolved and to-day the three banks are advertising again. This experience could be duplicated in thousands of cases. Practically speaking, there is not a business of any nature that cannot be aided by judicious publicity.

SCIENTIFIC MANAGEMENT.

Scientific management is the modern industrial movement for increased output, improved quality and the conservation of human resources. It's study of time and motions increases output. Its carefully standardized conditions improves quality Its appreciation of the mental attitude of the worker, and the cash value of comfort and good air, make for the conservation of human resources. The question arises naturally in the mind of the manager of the smaller mill, "Who is to look after this for me?" One American paper mill we have heard of had a chemist. They thought one chemist enough, but, after introducing scientific management, they found it necessary to engage seven.

Is a chemist necessary in a paper or pulp mill? is a question often raised. To some, at first sight, it seems unnecessary to add another salary to the overhead charges. A great deal depends, in fact it all depends, upon the experience and capabilities of the chemist. A manager would not take a fresh graduate from business college as head of his office staff, but often a young chemist with little or no general experience is engaged, because such can be had for a small salary, to put his ear to the beating heart of a large business and prescribe. His chemical knowledge is limited to textbook data and laboratory work. He does not get on well with the men or the superintendent, who continually try to catch him napping, and have little or no idea what he can do to help them.

The chemical engineer of today who is successful in mill work is one who has a broad general knowledge of applied chemistry, mechanics and physics; he should be a fair daughtsman, and must be able to command the respect and confidence of all in the mill from the manager down. He should be able and willing to run an engine, take up a belt, or dictate a good letter. He it is, who, in the near future, will be looked to as the pivot of scientific management, at least in the average sized plant, as it is likely he will be the only scientifically trained man there, until the golden age of industry dawns, when education, both primary and secondary, shall be free. We are coming to it slowly. Office methods and mill practice are being standardized and systematized, and it has been found to produce dividends.

EDITORIAL COMMENT.

As published in our news column elsewhere and also given out in bulletin form by the Forestry Branch at Ottawa, there are results obtained at Queen's University, Kingston, and by the E. B. Eddy Co., of Hull, on the use of sulphite waste liquors on roads instead of oil. Great enthusiasm seems to be found in all branches over this so called new discovery. Similar experiments have, however, been tried in many points in the United States with little or no results. It is, of course, good for the country and industry to see people with investigative minds working along this line, but in the present instance it seems very doubtful if the results obtained justify the talk which has been made on this point. It is extremely doubtful if very much prospect lies in this direction.

PULP MILLS IN THE FAR NORTH.

(Special to Pulp and Paper Magazine.)

Ottawa, Ont., October 7th, 1913.

Pulp mills on the fringe of the Arctic Circle may be a reality of the future, according to the report brought home by Henry A. Conroy, inspector of Indian Agencies, who has just returned to Ottawa from a trip of thousands of miles to the far north. According to Mr. Conroy he saw the biggest spruce he had ever come across there.

"There is a fringe of good timber, mostly spruce, in view all the way along the Liard River to its junction with the Nelson," stated Mr. Conroy. "Then, on the Nelson, there is also good timber. And when you get into the foothills you see the finest kind of spruce. Some of it will go to five or six feet across the stumps, the biggest spruce I have ever seen. This is on the British Columbia side of the boundary."

POWER CONSUMPTION WHEN BEATING HALF AND WHOLE STUFFS

By ARNOLD REHN

CHAPTER II.

PART I of this article treated beating of half stuff and the power consumed, These investigations will now be extended to the beating of whole stuff. First of all I will give an exact description of the whole finisher with which the trials were carried out (shown in figure 2) as well as some data given by Kirchner for this engine.

The concrete trough of this engine, which was lined with earthenware tiles, is 6050 mm in length, 2350 mm in width, 800 mm deep at the front and 950 mm deep in the rear; the roll of the rough canal is 1250 mm and the open canal 950 mm wide on the inside, while the mid-feather is 150 mm thick. The beating roll, of 1430 mm in diameter and 1200 mm in width is provided with 105 bars of 8 mm in thickness, which form cells of 65 mm in depth; the bars are inclined 8 mm to the radius, and the cutting edges inclined 340 mm, i.e. they form an angle of 15° 50′ to the axis of the roll. The 44 bars of the bed-plats, which is 240 mm wide, are inclined 11° 20′ to the axis of the roll, so that they cut at the very acute angle of only 4° 30′, and result in only 25 to 27 parallelogram surfaces. These bed plate bars are 3.5 mm in thickness. The size of the 26 contact surfaces amount to 20 x 3.57 = 92.89 cm.

The sole of the trough is raised towards the middle of the bed plate by 270 mm, and is about 2750 mm in length, i.e. it is inclined about 5°40′. The sole in the open trough canal, which is about 6000 mm in length at the middle line, is inclined about 260 mm, or 2°5′. The saddle or highest part of the back-fall is 110 mm above the centre of the roll, and the pocket is 100 mm wide at the top. The lift of the stuff, from the top edge of the bed plate bars to the highest point of the backfall, amounts to 825 mm. The roll, which is 1430 mm in diameter and 1200 mm wide, weighs, together with the axle, 2370 kgs; the driving pulley of 2200 mm in diameter and 400 mm in width weighs 800 kgs. The r.p.m. of the roll is 130, and its circumferential velocity therefore 9.73 metres.

The roll is covered with a simple hood, on the right side of which is a deflecting trap which, together with the arch of the hood, forms a doctor close to the circumference of the roll, so that all stuff splashing over the top of the backfall is deflected and thrown on to the inclined surface of the backfall. The pulley of the engine is driven by a belt and a pulley of 600 mm in diameter and 400 mm in width, which makes about 480 revolutions per minute. The actual fibre charge varies between 392 and 450 kgs, and that of fibre stuff and clay together about 419 to 523 kgs. The trial engine may be therefore said to be one having 450 kgs capacity.

Kirchner estimates 800 kgs to be the tension of the tight side of the belt, and 400 kgs that of the slack side of the belt, so that the tensile force is

$$P = 800 - 400 = 400 \text{ kgs.}$$

He further calculates that the pressure of the bearing near the roll amounts to 1916 kgs and that of the bearings nearest the driving pulley 3206 kgs. Kirchner calculates the frictional losses in the bearings when the roll is raised at 4.16 H.P., and when the roll is lowered on to the bed plate at 2.7 H.P., so that 1.46 H.P. is gained for beating on account of the reduced frictional losses in the bearings.

The maximum pressure on the roll may amount to 2801 kgs, which is distributed over 92.8 square cm. of surface, resulting in a maximum surface pressure of 30.18 kg/ sq. cm. On this point Kirchner says "this pressure is extremely high and demands a very careful attendant who can adjust the beating roll by a certain feeling and the sound, so that stuff is not obtained too short or too greasy as a result of the excessive pressure.

The following remarks bear upon my trials and calculations:

Here too the total power consumed was analysed to show the energy necessary for each individual process in the beating engine, and for each diagram the power required for empty running, circulation of pulp and the beating including the friction of the bed-plate knife material is given. To do this it was necessary to raise the roll at certain periods during the beating, in order to find the power required for empty running and circulation. This raising of the roll is noticeable in the diagram and naturally does not occur in the ordinary process of beating. As the amount of filling material added to the whole stuff is an important item in calculating the power consumed for 100 kgs, the power consumed for 100 kgs of pure fibre without any addition of clay was first ascertained, and subsequently that for 100 kgs of paper including filling material (ash contents of paper given). In order to find the fibre stuff contents of each engine represented by a diagram, the density and the ash contents of the whole stuff was given in each case. The latter is for the greater part very low, as the trials took place without any addition of filling materials. The filling material was first given in the mixing engine, so that it was only possible for a limited quantity of filling material to get into the beating engines as a result of the addition of paper shavings from the edge runner. In all cases where the ash contents of the whole stuff did not exceed 1% they were neglected; in the other case they were subtracted when calculating the pure fibrous stuff contents. The difference in power consumption when beating with the filling material was found to be very slight, and only noticeable by the somewhat increased power consumption for the circulation of the pulp. The trials could therefore be carried out without any addition of filling material. This was necessary as it was not possible to obtain a reliable figure for the density as well as the ash contents of the whole stuff when filling materials were added, the clay not being equally distributed in the engine, and the most carefully taken stuff sample being liable to lead to erroneous conclusions. From the stuff densities ascertained there was no difficulty in calculating the pure fibrous stuff contents of the engine in question, as the same was well-known from a certain thickness of pulp. This process was much more accurate than it would be if each engine were worked quite separately and paper weighed, as the losses in working up the paper on the paper machine too are irregular, and a single breaking known for a certain thickness of pulp. This process was much more accurate than it would be if each engine were worked quite separately and the paper weighed, as the mechanical losses in working up the paper on the paper machine are too irregular, and a single breaking off of the paper would suffice to cause the results to be unreliable (see diagram).

The power required for empty running and circulation of pulp is shown in the diagram A. by a second dotted zero line. It will be seen that in working rag half-stuff, the power consumption for empty running and circulation falls off considerably in the first half of the beating process. In diagrams 1 to 3 the power sinks from 31 to 24 kw, and in engine No. 4, which had a much smaller charge at the baginning, from 28 to 24 kgs. The power consumption again increased on a further charge of raw materials being given, but became more constant during continued beating. In beating paper consisting only of cellulose and old paper, the power required for the circulation increased considerably during the beating process.

In No. 49 off the "Papier Fabrikant" 1912, Beadle replies to an article of mine, and therein mentions that both the diagrams published by me and also his own, show a very considerable falling off in the power consumption when the position of the roll has remained unaltered for a length of time. This is not always the case as expressed above, as the reader will be able to see for himself from the diagrams. It applies undoubtedly at the commencement of the beating process, as long as a shortening of the fibre takes place. In the second part of the beating process, as shown in the diagrams, a partial but distinctly noticeable increase in the power consumption takes place, whilst the position of the rolls remain unaltered. For instance, in diagrams 2 and 7a, the increase in the power consumption whilst the rolls remain unaltered amounts to from 6 to 8 kw. One may say that as long as the stuff is being shortened the power consumption falls, when beating with the rolls in an unaltered position, but, as soon as the pulp has attained a certain degree of greasiness, an opposite effect is produced, and the power consumption increases whilst the rolls remain in the same position. It will therefore be seen that short half-stuff requires less power for circulation than long fibre; the power consumption furthermore, as mentioned above, depends upon the greasiness of the stuff. The contents of an engine charged with greasy stuff are more viscid than the contents of one charged with other stuff. The same phenomenon then appears as is the case with thick and thin charges, viz., a greater power consumption for the circulation of the former than for the latter. There is a very close connection between this and the reduced circulation of the pulp observed in the progress of the beating process. The greasier the pulp is the more viscid it becomes, with the result that the speed of circulation is lowered. This is explained by the cellulose greedily absorbing water and "swelling" as the engineer says. The greasier the stuff is the more this "swelling" takes place, resulting in a falling off of the speed of the circulation of the stuff, and a consequent and proportional increase in the power consumption. In the case of rag half-stuff a falling off in the power consumption for the circulation was noticed at the commencement, as mentioned above, and is explained by the rapid shortening of the stuff, a phenomenon which occurs to a greater extent in this kind of raw material than in the case of cellulose.

With reference to table 1 it is to be noticed that for the papers 1 to 3, very strong linen was employed, whilst for the paper 4 less strong material sufficed. Almost the whole of the tailings used were taken from former makes of the papers in question.

In tables 2 the most important values resulting from the tests, and shown in the diagrams, are summarised. The ash contents of whole stuff, without any addition of filling materials, were ascertained on the one hand, and on the other hand those of finished paper including filling materials. The contents of the beater in pure fibre stuffs, calculated from the density of the pulp, are given in column 6, from which the result in finished paper may be obtained by adding the percentage of ash contents of the paper to

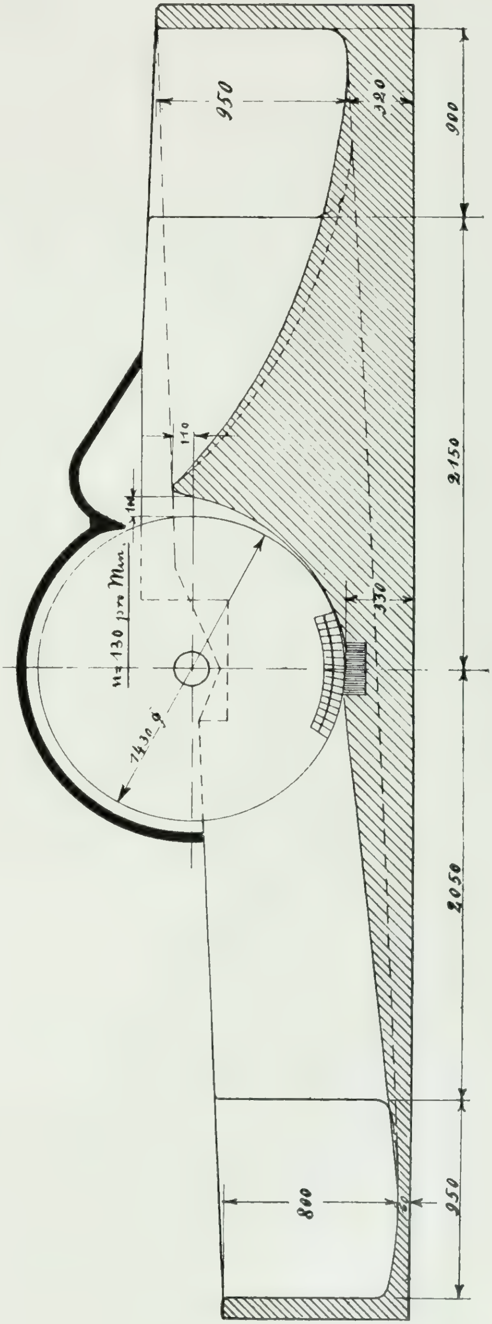


FIG. 2

the fibre stuff. The losses in the paper machine are neglected. In diagram No. 1, for instance, the pure fibre stuffs amounted to 389 kgs, i.e. 100—5 (ash contents of the paper) = 95%; consequently 100% of 419 kgs of finished paper.

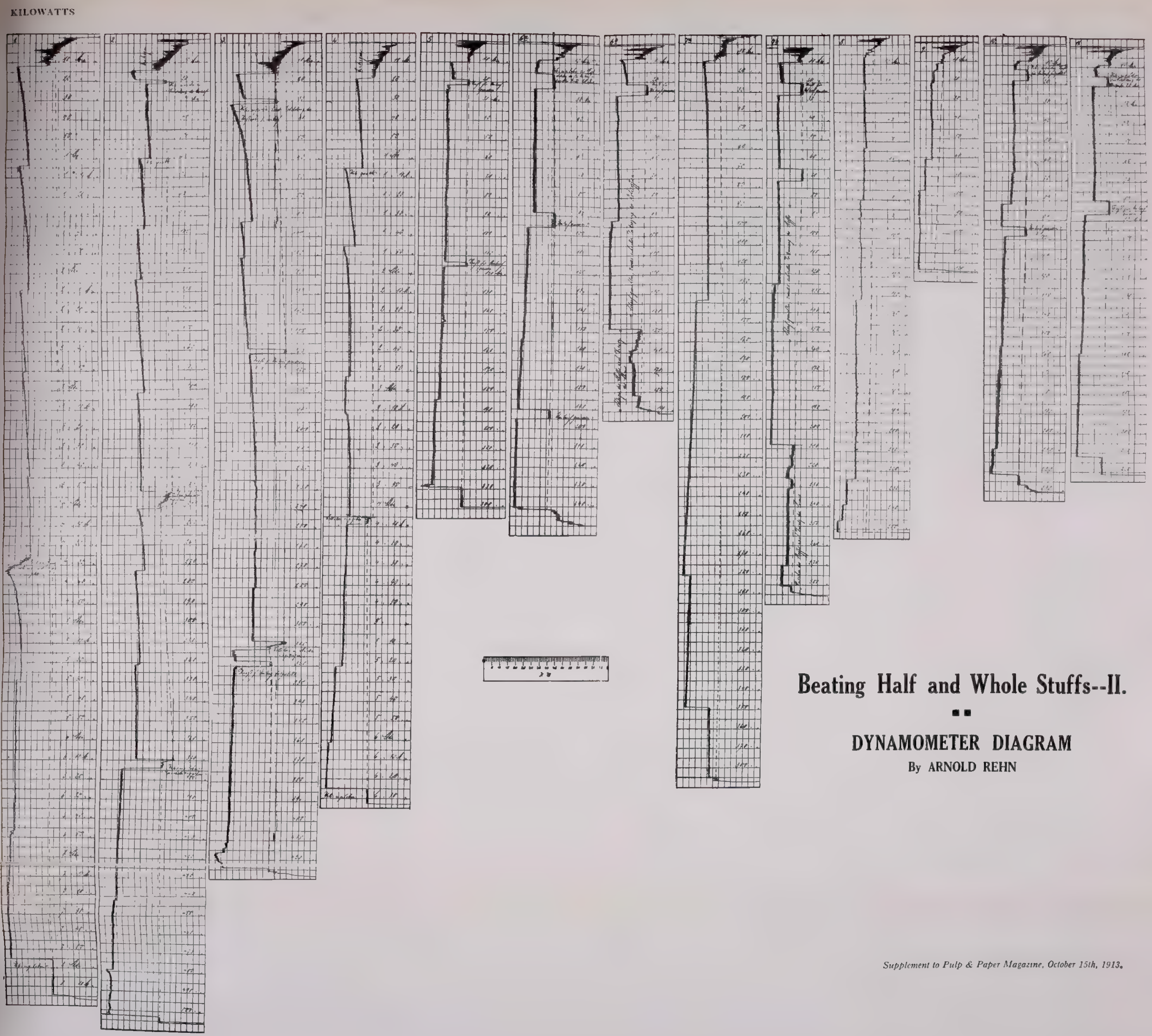
The next column gives the time in minutes required for the beating process of each engine, and in the following column the total power consumption obtained from the diagrams. This latter was divided into power for empty running, circulation of pulp, and beating work including the friction of the knives. The last three columns show the individual cost of power in percentages of the total power consumption.

In order to permit of a comparison between the individual kinds of stuff, table 3 was made, giving firstly the total power consumption, and secondly the total power consumption divided up into the work done in each individual engine, as well as the duration of treatment of 100 kgs of putre fibre stuff in each case. The ash contents of the paper play no part, and we see what great differences in power consumption occur in beating the various kinds of stuff; the same, even among the few kinds of papers given in the table, fluctuates from 107 kwh in 2a, to 16.8 kwh in the case of cardboard devoid of wood. The more power required for the beating process, especially in the case of rag paper, the smaller is naturally the share of power for empty running and pulp circulation in proportion to the total power consumption. In the most favorable case, as at 3a, the same will amount to 54.6% and in the most unfavorable case, with quickly beaten cardboard free of wood, even 75.7%. Up to the present the general opinion has been that at least 50% of the power consumed was due to the beating work alone, which is also Beadle's opinion; we see, however, that in the case of cellulose papers only about 25% to 40% falls to this work. The more the beating process is accelerated by sharp beating, or, in other words, the shorter the pulp is beaten, the less power is requisite for the beating. The result is therefore the same as that which I gave for half stuff beating apart from the slight costs for empty running and circulation of the pulp also means a saving in power during the beating proper. Hitherto this was only considered possible when greasy stuff was not required. For instance, the power required for the beating in normal 7b was only 9.4 kwh, whilst with about the same charge for normal 5a, which had to be beaten greasy to obtain the requisite strength, 22.7 kwh, that is, about twice the above, was required. The extra power required for empty running and circulation furthermore amounted to 16.3 kwh, so that the greasy beating of the stuff cost 29.6 kwh = 45% of the total power consumption. Considering these facts the question naturally arises as to whether it would not be possible to give the pulp a greasy character without having to expend such a great amount of power. I tried to solve this problem by adding the requisite amount of size at a certain point to the paper stuff in the beater whilst in the usual run of things the sizing as practised in many other works, took place in the mixing engine. The result was that the pulp became greasy much earlier, even when a thin charge was given. These trials, which I hope may lead to the beating work being more advantageously carried out in the future, will be described in a subsequent part of my work.

In considering table 3, one should take into account the composition of the pulp. We then see to what extent charging with stuffs of limited strength effect the power consumption. The latter falls from 107 kwh for 2a (high percentage of strong linen) to 96.4 kwh for 3b (rags of very little strength). Then comes normal 5a, in which, besides the above mentioned greasiness, the large quantity of unbleached Mitscherlich cellulose tends to cause the greater power consumption. More power was required for normal 4b than for normal 4a, although the latter pulp was more greasy. This is explained by the greater admixture of bleached cellulose in 4a which can be beaten short and greasy more rapidly and with less consumption of power than unbleached, as will be seen by the lower power consumption in diagram No. 10, the charge of which consisted entirely of bleaching stuffs. Furthermore, in this, as well as in the final diagram, the lower power required for straw stuff is expressed. The time taken up by the beater process also plays an important part, as the total power required for empty running and a great part of that required for the circulation of the pulp depends upon it. The thickness of the charge besides the already mentioned composition of the stuff, also comes into consideration, although the the duration of the beating process shows us the productiveness of the engine for the kind of paper in question. In order to show the power consumed for the paper stuff inclusive of the filling stuff, table 4 was drawn up containing the same data as table 3, but referring to 100 kgs of paper. The differences which occur compared with table 3 are brought about purely by the ash contents of the paper. The higher the percentage of ash in the paper was the greater the consumption of power per 100 kgs diminished. Furthermore, the strengths of the individual sorts of paper are given in this table, enabling comparisons to be made between the conditions of the beaten whole stuff. Folding resistance was purposely neglected as the papers varied too greatly in weight per square meter to allow of comparisons. It might however be mentioned that the conditions demanded for normal papers were amply attained in this direction.

The values given in tables II, III and IV for papers consisting exclusively or partially of rags are not quite conclusive inasmuch as they depend entirely upon the condition of the half stuff. It will always depend upon the extent to which the beating process is carried out in the breaker. In order to give accurate data regarding the power expenses of these papers I have drawn up table 5, which shows the proper consumption for half stuff as well as that for the whole stuff, and the total power consumption. The total power required for beating is also given in percentages of the total power consumption. To obtain the power expenses for the breaking in it was necessary as values obtained in the first part of my work refer to 100 kgs unboiled weight, to assume a loss (digester, washing and bleaching losses) of 35% for linen and 40% for cotton.

I shall now refer to the trials which were carried out in order to ascertain if it was not possible to accelerate the greasy beating of the pulp in the engine by an addition of size, and this reduce the extraordinarily high power consumption for empty running and circulation. As, some years ago, an attempt was made in our works to add the size soon after the charge, it was not necessary to repeat this experiment. The result obtained in the trial referred to showed that the pulp indeed became very greasy, but was only beaten short with very great difficulty. The time of beating was considerably longer than when the stuff was beaten without size. A saving in power was not to be thought of, in fact the contrary was the case, the power consumption being somewhat higher than when beating took place without the addition of size. It now struck me to attempt to separate the short beating of the stuff from the greasy beating, i.e., first to shorten the stuff in the engine for a certain length of time, and after getting the required shortness of fibre to raise the roll and add size and sulphate of alumina, and to convert the stuff into the desired greasy state by gentle beating (bruising). I know very well that a number of works commenced long ago to add the size shortly before emptying, but in the process now being described violent beating was employed at the commencement and in the latter part the beating was almost entirely suspended, as also shown in the diagrams 6b and 7b, whilst it has been a general custom hitherto



Beating Half and Whole Stuffs--II.

■ ■

DYNAMOMETER DIAGRAM

By ARNOLD REHN

Supplement to Pulp & Paper Magazine, October 15th, 1913.

wind up with violent beating. Furthermore a number of works have been induced, by the introduction of mixing engines, to add the size in the latter without recognising the fact that this procedure increases the power requirements for the beating process. We have seen in the examinations already carried out, that violent beating requires comparatively the smallest power, and this fact ought to be utilised here. The charge was the same as in diagram 6a, and the shortening was so far carried out by violent beating that only a very slight further shortening was necessary, which could be obtained during the bruising. This part of the beating process took 150 minutes in the case of 4b, and 210 minutes in the case of 5a. The further treatment in the beating engine exclusively served for obtaining the necessary greasiness, and had to be continued 40 minutes for the less greasy 4b pulp, and 70 minutes for the greasy 5a pulp.

Table VI contains a summary of the power values required, compared with those requisite for ordinary beating. As the values are based upon 100 kgs of pure fibrous stuff it is possible to compare them one with another without any alteration. We see that at 4b the total power required has sunk from 40.7 kwh to 28.7 kwh; at 5a from 65.8 kwh to 50 kwh. The reduced expenses for the circulation are the chief cause of this falling off, having sunk from 23.6 kwh to 12.9 kwh and 37.7 kwh to 22.1 kwh, whilst the beating costs remain approximately the same. As a result of the changed manner of beating, however, the percentages of the total power consumption for the beating work have been raised to 45% compared with 34.7% in the case of 4b, and 47.2% compared with 34.5% in the case of 5a. The results obtained with regard to the strength of the paper are somewhat less in 4b, although still quite sufficient, whilst the strength of 5a has been considerable improved.

The falling off in the strength of normal 4b is to be explained by the fact that the short beating was either continued too long or the greasy beating (bruising) of the stuff was not continued long enough. When introducing the above described process of beating the most suitable duration of beating should be fixed for each kind of stuff. This will not cause any great difficulties, as any paper-maker is in the position to ascertain the stuff length by the hand test, whilst a Klemm's sediment tester, such as constructed by the firm of L. Schopper in Leipsig, will do good service in ascertaining the greasiness.

The saving in power for the circulation is brought about by the reduction of the beating from 51 to 49 minutes, and 92 to 75 minutes on the one hand and by the thinner charge on the other hand. Whereas it was hitherto thought that thick charging could not be avoided for greasy pulp, the changed manner of beating makes it possible to obtain greasy pulp even when the charge is thin. We have, however, seen above that a thin charge required relatively less power for the circulation than a thick one, which accounts for the other part of the considerable saving in power. The reduced duration of beating naturally at the same time results in a reduction of the power required for empty running. The total saving obtained amounts to about ½ pfg. per kg of paper, and in addition the sizing qualities are improved by the beating with the size.

I am well aware that with the aid of the few trials which I have carried out it will not be possible to lay down any general rules, but these trials will, at any rate, show without a doubt that it is possible to put the beating process upon a much better basis by working the beating engine in a similar manner to the one described. Of course every paper-maker must ascertain by trials in his own plant how far the process may be carried on for each kind of paper without interfering with their important properties, such as touch, look-through, etc. Generally speaking, one may say that for obtaining long and greasy pulp the size should be given about half an hour to one hour before emptying. Quickly beaten stuff should be sized in the mixing engine, but care should be taken that the treatment of the pulp in the mixing engine is not interrupted too early as otherwise the sizing of the paper suffers.

The above described method of beating which I have developed has induced Beadle to make the following remarks:

"Mr. Rehn emphasizes the point that it is possible to obtain greasy pulp even when the charge is thin. I should like to ask, however, whether it is expeditious to do this from a paper-maker's practical standpoint. The paper-maker naturally wishes to get the best that he can from his beaters, and the general experience in England is that for the production of greasy stuff a thick furnish is desirable."

Beadle therefore believes that in the beating process which I propose the engines will have reduced output, because of the thinner charge being given. Table 4 clearly shows, however, that it is not a fact, but that the contrary is the case; the engines, when operated in the proposed manner, have a better efficiency as the duration of beating is considerably shortened. For 100 kgs of stuff the duration of beating is shortened by two minutes in diagram 6b, and even by 17 minutes in diagram 7b, compared with the engine which was given a thick charge. Beadle then continues as follows:—

"A point which I think will be of particular interest to paper-makers is one brought out by Mr. Rehn's figures, namely, that the power consumption of beating is greater in presence of rosin size than when the size is added after the beating operation is completed. If this is to hold good in general practice, paper-makers should take particular note of this. I am of opinion that just as good results concerning ink resistance are to be obtained when the sizing materials are added to the chest as when added to the beater. This being so it would be as well to add the size to the Hollander just before emptying or to the chest, in order to decrease the power consumption. Few particcal papermakers realise the influence that some chemical substances have upon the actual power consumption required for beating, e.g., the difference in the beating when a small amount of alkali is present or a small amount of acid substance. I would assume that the increased power consumption on the addition of the alum is to be noticed more on the addition of the alum. That is, I would presume that the rosin size alone, if added without alum, would not exert an increased power consumption and that an increased power consumption would be noted even if alum alone were added without rosin size."

It should be here remarked that I am not at present in a position to give figures regarding the power consumption necessary when the sizing materials are given shortly after the charge, but can only generally state that the short beating of the pulp in this manner took a considerably greater time, from which it would appear that an increased power consumption would follow. I agree with Beadle that the addition of certain chemicals may have a favorable or unfavorable influence upon the power consumption for beating, and it would certainly be an interesting and instructive study to ascertain the influence of certain chemicals in this direction. The fact that has been proved by my experiments, i.e., that the addition of the sizing materials **after** the short beating has taken place has an extraordinary effect upon obtaining the necessary greasiness of the stuff, and a considerable saving in power, only shows how very useful and valuable such trials are for the practical paper-maker. Whether rosin size or alum added to the stuff separately and solely have any influence upon the power consumption or nor, I am not in a position to say, as I have hitherto not carried out any practical trials to this effect.

TABLE I.—Summary of Charges.

				Contents of Charge.						
				Unbleached Cellulose.		Bleached Cellulose.				
No. of Diagram	Kind of Paper	Linen	Cotton	Mitscherlich	Ritter-Kellner Process	Mitscherlich	Ritter-Kellner Process	Straw stuff	Prices of Paper	Filling Material
		%	%	%	%	%	%	%	%	
1	Normal 2a	60	30						10	
2	Normal 2b	50	35						15	
3	Normal 3a	35	30			20			15	
4	Normal 3b	20	45		20				15	
5	Normal 4a....................				25	35	15		25	
6	Normal 4b				50	15			35	
7	Normal 5a			60	15				25	
8	Normal 7b			50	15				35	
9	Cardboard (wood-free).........				60				40	
10	Strong book paper free of wood					55	15	15	15	
11	Fine white post					50		35	15	

TABLE II.—Showing the values found by the trials and obtained from the diagrams.

			Ash Contents.						Power Consumption in K.W.H.			Percentage of Total Power Consumption		
No. of Diagram	Kind of Paper	Density of pulp in engine (without filling material)	Of finished beaten whole stuff.	Of paper made there from (incl. filling material)	Pure fibrous pulp in engine	Paper made out of the engine	Beating in minutes	Total Power Consumption of engine	For idle running	For circulation of pulp	For beating work	For idel running	For circulation of pulp	For beating work
		%	%	%		kg		K.W.H.				%	%	%
1	Normal 2a	5.27	0.8	5.0	398	419	495	426	28.9	208.8	188.3	6.8	49.0	44.2
2	Normal 2b	5.325	1.0	6.5	403	431	500	405	29.1	206.7	169.2	7.1	51.0	41.9
3	Normal 3a....	5.78	0.8	7.0	437	470	425	357	24.8	170.2	162.0	7.0	47.6	45.4
4	Normal 3b...	5.58	0.6	8.3	422	460	390	293	22.7	158.8	111.5	7.8	54.2	38.0
5	Normal 4a	5.88	4.5	12.0	425	483	240	164	14.0	94.0	56.0	8.5	57.4	34.1
6	Normal 4b	6.25	5.0	14.0	450	523	230	183	13.4	106.1	63.5	7.3	58.0	34.7
7	Normal 5a	5.67	2.5	9.3	418	461	385	275	22.5	157.5	95.0	8.2	57.3	34.5
8	Normal 7b	5.82	5.0	13.0	420	483	250	152	14.8	97.7	39.5	9.7	64.3	26.0
9	Cardboard (wood free).	5.766	5.0	11.0	416	480	120	70	7.0	46.0	17.0	10.0	65.7	24.3
10	Strong Book paper free of wood	5.23	0.6	11.0	392	440	230	148	13.4	88.1	46.5	9.0	60.0	31.0
11	Fine white post	5.53	0.6	11.0	418	470	210	137	12.3	78.7	46.0	9.0	57.4	33.6

TABLE III. Reckoned per 100 kg. pure fibrous pulp.

			Power Consumption in K.W.H.				Percentage of Total Power Consumption		
No. of Diagram	Kind of Paper	Power consumption for 100 kgs	For idle running	For circulation of pulp	For beating work	Duration of beating process in minutes	For idle running	For circulation of pulp	For beating work
		K.W.H.					%	%	%
1	Normal 2a	107.0	7.3	52.4	47.3	125.0	6.8	49.0	44.2
2	Normal 2b	100.0	7.1	51.0	41.9	124.0	7.1	51.0	41.9
3	Normal 3a	81.7	5.7	38.9	37.1	97.0	7.0	47.6	45.4
4	Normal 3b.	69.4	5.4	37.6	26.4	92.0	7.8	54.2	28.0
5	Normal 4a..	38.6	3.3	22.1	13.2	46.5	8.5	57.4	34.1
6	Normal 4b	40.7	3.0	23.6	14.1	51.0	7.3	58.0	34.7
7	Normal 5a	65.8	5.1	37.7	22.7	92.0	8.2	57.3	34.5
8	Normal 7b..........	36.2	3.5	23.2	9.4	60.0	9.7	64.3	26.0
9	Cardboard (wood free).	16.8	1.7	11.0	4.1	29.0	10.0	65.7	24.3
10	Strong Book paper free of wood	37.7	3.4	22.6	11.7	59.0	9.0	60.0	31.0
11	Fine white post	32.8	3.0	18.8	11.0	50.0	9.0	57.4	33.6

TABLE IV.—Reckoned per 100 kg. paper from the paper machine without considering waste.

No. of Diagram	Kind of Paper.	Power consumption per 100 kg	Power consumptiom in K.W.H.			Duration of beating in minutes.	Percentage of Total Power Consumption.			Quality of Paper		
			For idle running	For circulation of pulp	For beating work		For idle running	For circulation of pulp	For beating work	Fracture length in metres	Dilatation	Ash contents
		K.W.H.					%	%	%		%	%
1	Normal 2a	102.0	6.9	50.0	45.1	118.0	6.8	49.0	44.2	4788	4.8	5.0
2	Normal 2b	94.0	6.7	47.9	39.4	114.0	7.1	51.0	41.9	3871	4.6	6.5
3	Normal 3a	76.0	5.3	36.2	34.5	90.0	7.0	47.6	45.4	4212	4.2	7.0
4	Normal 3b	64.0	5.0	34.7	24.3	85.0	7.8	54.2	38.0	3374	3.4	8.3
5	Normal 4a	34.0	2.9	19.5	11.6	49.5	8.5	57.4	34.1	3632	3.9	12.0
6	Normal 4b	35.0	2.6	20.3	12.1	44.0	7.3	58.0	34.7	3602	4.0	14.0
7	Normal 5a	59.6	4.9	34.2	20.5	83.0	8.2	57.3	34.5	4205	3.6	9.3
8	Normal 7b	31.4	3.0	20.2	8.2	52.0	9.7	64.3	26.0	3200	2.7	13.0
8	Cardboard (wood free)	14.5	1.5	9.5	3.5	25.0	10.0	65.7	24.3	3154	2.9	14.0
10	Strong book paper free of wood	33.6	3.0	20.2	10.4	52.0	9.0	60.0	31.0	3740	4.0	11.0
11	Fine white post††	29.2	2.6	16.8	9.8	44.5	9.0	57.4	33.6	3693	3.0	11.0

TABLE V. Power Consumption for beating Half and Whole Stuffs, for Papers made exclusively or partially of Rags.

No. of Diagram	Kind of Paper.	Power Consumption for breaking in.			Power consumption for beating process	Total Power Consumption (breaking and beating).	Power required solely for beating in K.W.H.			
		For Linen	For Cotton	Total Power consumption for breaking in			For the half-stuff	For the whole-stuff	Total Power Consumption (breaking and beating)	The same in percentages of total power consumption
					Kilowatt	hours				%
1	Normal 2a.	65	28	93	107	200	31	47	78	39
2	Normal 2b.	54	32	86	100	186	28	42	70	38
3	Normal 3a.	38	28	66	82	148	22	37	59	40
4	Normal 3b.	18	41	59	69	128	18	26	44	35

TABLE VI.—Comparison of Power Consumption when the proposed Beating Process is employed with the usual beating process. Reckoned per 100 kg. of pure fibrous, material.

No. of Diagram	Kind of Paper.	Density of pulp	Pure fibrous stuff contents of engine	Total Power Consumption for work in engine	Power Consumption in K.W.H.			Pecentage of Total Power Consumption			Duration of beating minutes	Quality of the Paper.			Mode of Beating
					For idle running	For circulation of pulp	For beating work	For idle running	For circulation of pulp	For beating work		Traction length in metres	Dilatation	No of double folds	
								%	%	%			%		
6a	Normal 4b	6.25	450	40.7	3.0	23.6	14.1	7.3	58.0	34.7	51	3602	4.0	184	Ususal
6b	Normal 4b	5.35	385	28.7	2.9	12.9	12.9	10.0	45.0	45.0	49	3375	3.3	254	Proposed
7a	Normal 5a	5.67	418	65.8	5.4	37.7	22.7	8.2	57.3	34.5	92	4205	3.6	515	Usual
7b	Normal 5a	5.07	375	50.0	4.4	22.0	23.6	8.8	44.0	47.2	75	5274	3.6	950	Proposed

TABLE VII. Comparison between large and small beating engines. The valves refer to 100 kg. pure fibrous material.

Kind of Engine	Pure fibrous material contents	Total power consumption for work in engine reckoned per 100 kg of fibrous material	Power Consumption in K.W.H.			Percentage of Total Power Consumption.			Duration of beating per 100 kg fibre in minutes	Quality of Paper	
			For idle running	For circulation of the pulp	For the beating work	For idle running	For circulation of the pulp	For the beating work		Fraction length in metres	Dilatation
		K.W.H.									%
Large engine	417	60	3.9	27.5	28.6	6.5	45.8	47.7	67	5290	4.2
Small engine	140	19	2.3	21.3	25.4	4.7	43.5	51.8	140	5410	4.5

ROSIN AS A FACTOR IN PAPER DISCOLORATION

OTHER CAUSES OF THE YELLOWING OF PAPER—THE QUESTION OF THE STABILITY OF COLOR.

Two articles which have recently appeared in the German technical press dealing with the autooxidation of ordinary rosin or colophony, and the discoloring effect of such change on papers sized with this substance are the subject of review by J. F. Briggs in "The Chemical World" for April, 1913.

At the last annual meeting of the Verein der Zellstoff and Papier Chemiker at Berlin, Professor Klason, of Stockholm, described some of his researches with rosin. In the first place, it was recognized that the resin acids in the crude oleoresin are totally distinct from those in the manufactured colophony; the former are more readily soluble and undergo autooxidation on exposure to air far more rapidly than the latter. In the process of manufacture by the distillation of the natural oleoresin, an isomerisation of the resin acids takes place under the influence of heat.

In his investigations on colophony, Klason exposed powdered rosin, having approximately the composition of pure colophonic acid, $C_{20}H_{30}O_2$, to the action of sunlight for several weeks in the summer. At the end of the exposure, the rosin had gained about 8 per cent. in weight, and analysis indicated almost exactly the formula $C_{20}H_{30}O_2 + O_2$. The product was tested for the presence of an organic peroxide by means of a test devised by Klason himself which depends on the oxidation by the peroxide of mercaptan, or better, of cymene hydrosulphide, the mercaptans being capable of sharp titration with iodine. The oxidised rosin contained no trace of a peroxide, but on repeating the exposure experiments with fresh quantities of rosin, it was found that in the earlier stages of a short exposure of the rosin small quantities of a peroxide could indeed be detected. It must, therefore, be concluded that a peroxide is the primary product of the autooxidation, but that subsequently it is changed into a substance having no peroxide properties. A similar type of reaction has been recognized in the autooxidation of oil of turpentine.

The color of the oxidised rosin differed scarcely at all from that of the original the product was rather less readily soluble in petroleum spirit than before; it was amorphous and yielded amorphous salts; these salts show a tendency to rapid discoloration. The autooxidation of rosin takes place very slowly, if at all, in the dark.

In papers sized with rosin and exposed to light and air, the conversion of the finely distributed colophonic acid into autooxidised rosin takes place in a few days, and if only traces of basic matters be present to combine with the resin acids the paper gradually turns yellow. On the other hand, so long as the papers are kept in the dark, no oxidation of the rosin takes place.

In Klason's opinion, the autooxidation of the rosin is hardly likely to affect the stability of the cellulose in a chemical sense, since the oxidation is complete after a comparatively very short exposure and the peroxides are present only in minute quantities during a small portion of that time. Except for the secondary darkening of its salts, the rosin, once oxidised, appears thereafter to be inert both to light and air. To test the influence of the oxidation on the strength of papers, filter paper was steeped in a chloroform solution of rosin and dried; one portion was then exposed to the light whilst the other was kept in the dark. On testing the tensile strains of the two portions, no alteration could be detected as the result of exposure, but the exposed paper seemed slightly more brittle. It is possible that this brittleness was merely a physical effect of structural alteration of the rosin during oxidation; in any case, these papers contained far more rosin than ordinary engine-sized paper, so that no serious deterioration of the fiber is to be expected under ordinary conditions. Certainly it is not to be feared, as has been suggested, that modern engin-sized papers will fall to pieces after a century or so owing to the autooxidation of the roisn. Nevertheless, on account of the discoloration which undoubtedly follows the exposure of rosin-sized papers, containing traces of basic matter, it seems desirable to reduce the quantity of rosin in valuable book papers to the lowest possible since it is established from an examination of old books that those containing the least rosin remain in the best state of preservation. Highly sized papers may look and handle very nicely when new, but they discolor more rapidly than soft sized papers. Incidentally, Professor Klason has made the observation that paper seems to hold back a small proportion of rosin, presumably in the form of an absorption compound, so firmly that it cannot be extracted by treatment with solvents.

Another series of researches dealing generally with the discoloration of paper, but more particularly with V. Schoeller in several numbers of the "Wochenblatt fur Papierfabrikation" at the end of 1912. Schoeller likewise recognises that rosin sizing is a very potent factor in the discoloration of papers. It had been thought hitherto ,that its darkening action was mainly due to the formation of resinates of iron, owing to the presence of iron salts in the sulphate of alumina used for precipitating the size. Schoeller shows, however, that the action of iron is not the most serious cause of discoloration as it only begins to be perceptible when the proportion of iron in the form of resinate amounts to 0.04 per cent. of the total rosin present. This amount is twice as large as is to be expected when sizing under practical conditions with ordinary aluminum sulphate. The main factor in the discoloration of engine-sized papers is the alteration of the rosin itself, an alteration caused by, or at any rate accompanying, the process of autooxidation described by Klason. There is a slight difference, however, between the conclusions arrived at by these two independent investigators. Klason considers that the darkening in color is due to the secondary changes of the salts of the oxidised rosin formed in the presence of small quantites of bases. Schoeller, measuring the degree of oxidation by the fall in the iodine-absorption value of the unsaturated groups recognises that the rosin is oxidised, but considers that the oxidation affects mainly some constituent which is not concerned in the darkening. Schoeller produces the discoloration rapidly by heating the rosin-sized paper in presence of air at a temperature of 95° C., and estimates the relative tendency to discoloration by the time of heating required to reproduce it. His researches having been published before Klason's he has not taken into account the possible subsidiary influence of basic matters.

Schoeller goes on to show that the iodine-absorption value of a sample of rosin is no measure of its tendency to darken when exposed to hot air, and that the purified resin acids extracted from rosin by aqueous alcohol, are more prone to darken than the original rosin, yet those resin acids have a lower iodine value. Schoeller, further, was able to "stabilise" rosin by treating a solution of rosin with chlorine in the form of acidified bleaching powder solution. The treated rosin contained 16.9 per cent. of combined chlorine, and its iodine-absorption value had fallen very considerably. This chlorinated rosin can be saponified and used for engine-sizing paper in the ordinary way and, provided the aluminum sulphate employed be reasonably free from iron, it is asserted that the paper sized with chlorinated rosin is perfectly stable and shows little or no tendency to discoloration under the conditions of the test.

Quite apart from the question of rosin sizing, papers may turn yellow to a number of causes which Schoeller has also investigated. In the first place, the blue dyestuff used for tinting the white may fade where exposed to the light, thus exposing the cream shade of the cellulose. In other cases, the bleached cellulose itself may be unstable in color, especially if the organic residues of the bleaching reaction have not been completely eliminated by thorough washing. Again the cellulose may be chemically modified either before or during the bleaching.

Rosin-sizing apart, papers made from sound rags, bleached with moderately strong liquor, quickly and thoroughly washed immediately afterwards, are as stable in color as can be demanded. Old and worn rags, overbleached rags, rags which have lain for a long time before washing out the exhausted bleach residues, yield modified cellulose, which is liable to turn yellow on exposure or storage. Papers prepared from fibers other than rags, such as wood cellulose, straw and esparto, consist in any case of chemically inferior cellulose, by their nature more sensitive to bleach liquor than rag cellulose. Such pulp also contain residues of unsaturated compounds (resins, lignin), which themselves are sensitive to light, and in the purification of these pulps very large proportions of bleaching powder are employed. Consequently the degree of color stability to be expected from papers other than pure, sound rag papers is not very high, but with careful manufacture results sufficient for ordinary general purposes are obtainable.—Paper.

HIGHER PRICES FOR NEWS PRINT.

(Special to Pulp and Paper Magazine).

New York, N.Y., Oct. 10, 1913

Several optimistic expressions are heard in this city over the probability of higher prices of News Print paper. An official of the International Paper Co., expresses his views on the subject as follows: "I do not believe that news print prices will go lower under the new tariff than they are at present." said a representative of the International Paper Company here today. "In fact I rather look for higher prices to prevail. The ability of the Canadians to undersell us has been over estimated. Canadian concerns generally are capitalized at high figures. The new companies across the border will find that their depreciaton and exhaustion charges will need to be larger than they have anticipated. After adding the cost of transportation, as well as storage charges, the Canadians will hardly be in a position to undersell us, even with news print on the free list.

"The International Paper Co., will be able to secure all its pulp requirements from its freehold lands in Canada which it controls in addition to its extensive Crown lands, and therefore the vast tracts of Crown lands which the company secured to supply its pulp requirements can not be used for this purpose. The Company is now obtaining a considerable revenue from this source through the sale of the wood as lumber, most of which is exported to Europe The production of Canadian mills, including those in course of construction, is about 1,500 tons per day. The consumption of news print in this country is about 4,000 tons daily. So far this year there has been an increase of 6 per cent. in consumpton, and it is expected that this rate will increase before the close of the year. It is figured that the new Canadian plants completed and the mills of the United States and Canada running at a normal capacity for the next twenty-four months, consumption would take care of from 90 to 95 per cent. of the total output in both countries

New U. S. Tariff

Schedule M-Paper and Books.

328—Sheathing paper, pulpboard in rolls, not laminated, roofing felt, common paper, box board, not coated, lined, embossed printed or decorated in any manner, nor cut into shapes for boxes or other articles, 5 per centum ad valorem.

329—Filter masse or filter stock, composed wholly or in part of wood pulp, a wood flour, cotton or other vegetable fiber, 20 per centum ad valorem.

330—Printing paper (other than paper commercially known as hand-made or machine hand-made paper, japan paper, and imitation japan paper by whatever name known) unsized, sized or glued, suitable for the printing of books an newspapers, but not for covers or bindings, not specially provided for in this section, valued above 2½ cents per pound, 12 per centum ad valorem; provided, however, that if any country, dependency, province, or other sub-division of government shall impose any export duty, export license fee, or other charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, there shall be imposed upon printing paper, valued above 2½ cents per pound, when imported either directly or indirectly from such country, dependency, province, or other sub-division of government, an additional duty equal to the amount of the highest export duty or other export charge imposed by such country, dependency, province, or other sub-division of government, upon either printing paper, or upon an amount of wood pulp. or wood for use in the manufacture of wood pulp necessary to manufacture such printing paper.

331—Papers commonly known as copying paper, stereotype paper, bibulous paper, tissue paper, pottery paper, letter-copying books, wholly or partly manufactured, crepe paper and filtering paper, and articles manufactured from any of the foregoing papers or of which such paper is the component material of chief value, 30 per centum ad valorem.

332—Papers wholly or partly covered with metal leaf or with gelatin or flock, paper with white coated surface or surfaces, calender plate finished, hand dipped marbelized paper, parchment paper, and lithographic transfer paper not printed, 25 per centum ad valorem; papers with coated surface or surfaces suitable for covering boxes, not specially provided for, whether or not embossed or printed except by lithographic process, 40 per centum ad valorem; all other paper with coated surface or surfaces not specially provided for in this section; uncoated papers, gummed, or with the surface or surfaces wholly or partly decorated or covered with a design, fancy effect, pattern or character, whether produced in the pulp or otherwise except by lithographic process, cloth-lined or reinforced papers, and grease-proof and imitation parchment papers which have been supercalendered and rendered transparent or partially so, by whatever name known, all other grease-proof and imitation parchment papers, not specially provided for in this section, by whatever name known, bags, envelopes, and all other articles composed wholly or in chief value of any of the foregoing papers, not specially provided for in this section and all boxes of paper or papier mache or wood covered with any of the foregoing papers or covered or lined with cotton or other vegetable fibre, 35 per centum ad valorem; albumenized or sensitized paper or paper otherwise surface-coated for photographic purposes, 25 per centum ad valorem plain basic papers for albumenizing, sensitizing, baryta coating, or for photographic or solar printing processes, 15 per centum ad valorem.

333—Pictures, calendars, cards, booklets, labels, flaps, cigar bands, placards, and other articles composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material (except boxes, views of American scenery or objects, and music and illustrations when forming a part of a periodical or newspaper or of bound or unbound books, accompaniyng the same, not specially provided for in this section) shall pay duty at the following rates: Labels and flaps printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part of metal leaf, 15 cents per pound; cigar bands of the same number of colors and printings, 20 cents per pound; labels and flaps printed in eight or more colors (bronze printing to be counted as two colors) but not printed in whole or in part of metal leaf, 20c. per pound; cigar bands of the same number of colors and printings, 25 cents per pound; labels and flaps printed in whole or in part of metal leaf, 35 cents per pound; cigar bands printed in whole or in part of metal leaf, 40 cents per pound; booklets 7 cents per pound; all other articles not exceeding eight one-thousandths of an inch in thickness, 15 cents per pound; exceeding eight one-thousandths of an inch and not exceeding twenty one-thousandths of an inch in thickness and less than thirty five square inches cutting size in dimensions, 5 cents per pound; exceeding eight and not exceeding twenty-one thousandths of an inch in thickness and thirty-five square inches and over cutting size in dimension, 7 cents per pound; exceeding twenty one-thousandths of an inch in thickness, 5 cents per pound, providing that in the case of articles hereinbefore specified the thickness which shall determine the rate of duty to be imposed shall be that of the thinnest lithographed material found in the article, but for the purpose of this paragraph the thickness of lithographs mounted or pasted upon paper, cardboard, or other material shall be the combined thickness of the lithograph and the foundation upon which it is mounted or pasted; books of paper or other material for children's use, lithographically printed in whole or in part, not exceeding in weight twenty-four ounces each, 4 cents per pound; fashion magazines or periodicals printed in whole or in part by lithographic process or decorated by hand, 6 cents per pound; booklets, wholly or in chief value of paper, decorated in whole or in part by hand or by spraying, whether or not lithographed, 10 cents per pound, decalcomanias in ceramic colors, weighing not over one hundred pounds per thousand sheets, on a basis of twenty by thirty inches in dimensions, 60 cents per pound; all other decalcomanias, except toy decalcomanias, 15 cents per pound.

334—Writing, letter, note, drawing handmade paper and paper commercially known as handmade paper and machine handmade paper, japan paper and imitation japan paper by whatever name known, and ledger, bond, record, tablet, typewriter and onionskin and imitation onionskin paper calendered or uncalendered, whether or not any such paper is ruled, bordered, embossed, printed, lined, or decorated in any manner, 25 per centum ad valorem.

335—Paper envelopes, folded or flat, not specially provided for in this section, 15 per centum ad valorem.

336—Jacquard designs on ruled paper, or cut on Jacquard cards, and parts of such designs, cardboard and bristol boards, press boards or press paper, paper hangings with paper back or composed wholly or in chief value of paper, and wrapping paper not specially provided for in this section, 25 per centum ad valorem.

337—Books of all kinds bound or unbound, including blank books, slate books and pamphlets, engravings, photographs, etchings, maps, charts, music in books or sheets, and printed matter, all the foregoing and not specially provided for in this section, 15 per centum ad valorem. Views of any landscape, scene, buildings, place or locality in the United States, on cardboard or paper, not thinner than eight one-thousands of an inch, by whatever process printed or produced, including those wholly or in part produced by wither lithographic or photogelatin process, except show cards, bound or unbound, or in any other form, 20 cents per pound; thinner than eight one-thousands of one inch $2 per thousand.

338—Photograph, autograph, scrap, post-card, and postage-stamp albums, wholly or partly manufactured, 25 per centum ad valorem.

339—Playing cards, 60 per centum ad valorem.

340—Papers or cardboard, cut die cut, or stamped into designs or shapes, such as initials, monograms, lace, borders, or other forms, and all post cards, not including American views, plain, decorated, embossed, or printed, except by lithographic process, and all papers and manufactures of paper or of which paper is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem.

Free List.

That on and after the day following the passage of this Act except as otherwise specially provided for in this Act, the articles mentioned in the following paragraphs shall, when imported into the United States or into any of its possessions (except the Philippine Islands and the islands of Guam and Tutuila,) be exempt from duty.

432.—Books, engravings, photographs, etchings, bound or unbound, maps and charts imported by authority or for the use of the United States or for the use of the Library of Congress.

433.—Books, maps, music engravings, photographs, etchings, lithographic prints, bound or unbound, and charts which shall have been printed more than tewenty years at the date of importation, and all hydrographic charts and publications issued for their subscribers or exchanges by scientific and literary associations or academies, or publications of individuals for gratuitous private circulation, not advertising matter, and public documents issued by foreign governments.

434—Books and pamphlets printed wholly or chiefly in languages other than English; also books and music, in raised print, used exclusively by the blind; and all text books used in schools and other educational institutions; Braille tablets, cubarithumes, special apparatus and objects serving to teach the blind including printing apparatus, machines, presses, and types for the use and benefit of the blind exclusively.

435—Books, maps, music, engravings, photographs, etchings, lithographic prints, and charts, specially imported not more than two copies in any one invoice, in good faith, for the use and by order of any society or institution incorporated or established solely for religious philosophical, educational scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school or seminary of learning in the United States, or any State of public library, and not for sale subject to such regulations as the Secretary of the Treasury shall prescribe.

436—Books, Libraries, usual and reasonable furniture and similar household effects or persons or families from foreign countries, all the foregoing, if actually used abroad by them not less than one year, and not intended for any other person or persons, nor for sale.

560—Newspapers and periodicals; but the term "periodicals" as herein used shall be understood to embrace only unbound or paper-covered publications issued within six months of the time of entry, devoted to current literature of the day, or containing current literature as a predominant feature, and issued regularly at stated periods, as weekly, monthly, or quarterly, and bearing the date of issue.

571—Paper stock, crude, of every description, including all grasses, fibres rags, waste, including jute, hemp, and flax, waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for in this section, including old gunny cloth and old gunny bags used chiefly for paper making.

572—Printing paper (other than paper commercially known as handmade or machine handmade paper, japan paper, and imitation japan paper by whatever name known unsized, sized, or glued, suitable for the printing of books and newspapers but not for covers for bindings, not specially provided for in this section, valued at not above 2½ cents per pound; decalcomania paper not printed.

573—Parchment and vellum.

619—Sulphur in any form, brimstone, and sulphur ore as pyrites, or sulphuret of iron in its natural state, containing in excess of 25 per centum of sulphur

649—Wood: logs, timber, round, unmanufactured hewn or sawed, sided or squared; **Pulp Woods,** kindling wood, fire -wood, hop poles, hoop poles, fence posts, handle bolts, shingle bolts, gun blocks for gunstocks, rough hewn or sawed, or planed on one side; hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks, oar blocks geading blocks, and all like blocks or sticks, rough hewn, sawed or bored; sawed boards, plank deals, and other lumber, not further manufactured than sawed, planed, and tongued and grooved; clapboards, laths, pickets, palings, staves, shingles, ship timber, ship planking, broom handles, sawdust and wood flour; all the foregoing not specially provided for in this section.

651—Mechanically ground wood pulp, chemical wood pulp, unbleached or bleached and rag pulp.

Chronology of the Tariff Bill.

April 7 Introduced into the House and referred to the Ways and Means Committee.

April 7 to 21—Discussed in House Democratic Caucus.

April 21—Reintroduced into the House.

May 8—Passed by the House.

May 16—Referred to Senate Finance Committee.

June 20—Reported to the Democratic Caucus by the Senate Finance Committee.

June 21 to July 7—Discussed in Senate Democratic Caucus

July 11—Approved by Finance Committee and reported to the Senate.

Sept. 6- Reported to the Senate from Committee of the Whole.

Sept. 9—Passed Senate.

Sept 10 to 27 Discussed in conference Committee of the two Houses.

Sept. 29—Reported to House from Conference Committee.

Oct. 2—Senate Adopts report of Conference Committee, receded from Clarke amendment and rejected Underwood amednment.

Oct. 3—House adopted Conference report.

Oct. 3—President Wilson signed the bill at 9 P.M

SCHEDULE A
CHEMICALS.

Article	Underwood-Simmons, Oct 3, 1913	Payne-Aldrich, Aug 5, 1909	Paragraph No.
Alum (sulphate of alumina)	15%	½c lb	7
Barytes, sulphate of	20%	$5.25 ton	52
Bleaching powder	1-10c lb	1-5c lb	13
Blues, ultramarine.................	15%	3c. lb.	53
Gelatine (under 10c. lb.)...........	1c.	2½c.	35
Glue under 10c per lb	1c	2½c	35
Glycerine, crude	1c	1c	36
Soda ash.........................	Free.	¼c. lb.	609
Soda, caustic	¼c lb	½c lb	68
Soda, sal	⅛c lb	1-6 lb	68
Talc, ground......................	15%	35%	70

SCHEDULE B.
EARTHS, ETC

China Clay	$1.25 ton	$2.50 ton	78
Grindstones	$1.50 ton	$1.75 ton	102

SCHEDULE M
PAPER AND BOOKS

Bags See coated paper, 332			
Bibulous paper—			
Under 6 lbs to ream	30%	6c lb + 15%	331
Over 6 lbs to ream	30%	5c lb + 15%	331
Blank books, n s p f	15%	25%	337
Board, card and bristol............	25%	35%	336
Bond paper	25%	3c lb + 15%	334
Books for children's use	4c lb	6c lb	333
Books, bound or unbound, n s p f	15%	25%	337
Booklets			
Lithographically printed, etc	7c lb	25%	333
Decorated by hand or spraying	10c lb	15c lb	333
Box boards, common paper	5%	35%	328
Boxes—See coated paper, 332			
Cardboard and paper, die cut, etc	25%	35%	340
Charts, n s p f	15%	25%	337
Cloth lined or reinforced papers	35%	35%	332
Copying paper			
Under 6 lbs to ream	30%	6c lb +15%	331
Over 6 lbs.	30%	5c. lb. +15%	331
Crepe paper	30%	5c. lb. +15%	331
Decalcomanias, ceramic			
Under 100 pounds per 1,000 sheets	60c lb	70c. lb. +15%	333
All other, except toy	15c lb	40c lb.	333
Engravings, n.s.p.f.	15%	25%	337
Envelopes See coated paper, 332			
Envelopes, n.s.p.f.............	15%	20%	335
Fashion magazines and periodicals	6c lb.	8c lb.	333
Filtering paper	30%	5c lb. +15%	331
Filter masse	20%	1¼c lb. +15%	329
Filter stock	20%	1¼c lb +15%	329
Flaps			
Litho printed in less than eight colors............	15c lb	20c lb	333
Printed in eight or more colors	20c lb	30c. lb	333
Printed on metal leaf	35c lb	50c lb	333
Gelatin coated paper	25%	5c. lb. +20%	332
Greaseproof papers, n.s.p.f	35%	2c. lb. +10%	332
Gummed papers See coated paper			
Hangings, with paper back, etc	25%	25%	336
Jacquard designs or cards	25%	35%	336
Japan paper and imitations	25%	3c. lb. +15%	334
Labels—			
Lith printed in less than eight colors	15c lb	20c lb.	333
Printed in eight or more colors	20c lb	30c lb.	333
Printed in metal leaf	35c. lb	40c lb	333
Ledger paper...	25%	3c. lb +15%	334
Letter copying books			
Under 6 lbs. to ream	30%	6c. lb. +15%	331
Over 6 lbs to ream	30%	5c. lb. +15%	331
Letter paper.	25%	3c. lb. +15%	334
Lithographically printed paper	7c lb	25%	333
Note paper	25%	3c. lb. +15%	334
Maps, n s p f	15%	25%	333
Metal leaf coated paper	25%	5c lb. +20%	332
Music in books or sheets, n s p f	15%	25%	332
Onionskin paper and imitations	25%	3c. lb. +15%	334
Pamphlets, n.s.p.f..........	15%	25%	337
Paper or cardboard, die cut, etc	25%	35%	340
Parchment paper............	25%	2c. lb. +10%	332
Parchment papers, imitation, n.s.p.f	25%	2c. lb. +10%	332
Photograph albums	25%	35%	338
Photographic papers.........	25%	30%	332
Playing cards...............	60%	10c pack +20%	339
Postage stamp albums	25%	35%	338
Post cards, not including American views, printed except by lithographic process	25%		340
Press board and paper	25%	35%	336
Printed matter, n.s.p.f	15%	25%	337
Printing paper for books and newspapers			
Value not over 2¼c lb	Free	3-16c. lb.	330
Value over 2¼c., but not over 2½c., lb	Free	3-16c. lb.	330
Value over 2½c., but not over 4c., lb	12%	3-10c lb	330
Value over 4c., but not over 5c., lb	12%	8-10c lb	330
Value over 5c. lb	12%	15%	350
Pulp boards in rolls not laminated	5%	10%	328
Roofing felt	5%	10%	328
Sheathing paper................	5%	10%	328
Stereotype paper			
Under 5 lbs to ream	30%	6c lb +15%	331
Over 6 lbs to ream	30%	5c. lb +15%	331
Surface coated paper			
Wholly or partly covered with metal leaf	25%	5c lb +20%	332
Covered with gelatin or flock	25%	4c lb +20%	332
With white coated surface or surfaces	25%	5c lb.	332
Hand dipped marbelized.	25%		332
Parchment paper	25%	2c lb +10%	332
Lithographic transfer paper, not printed.	25%	50%	332
Papers suitable for covering of boxes n s p f, whether or not embossed or printed except by lithographic process	40%		332
All other, with coated surfaces, n s p f	35%		332
Uncoated papers gummed or with surfaces wholly or partly decorated with a designs, etc., produced in the pulp or otherwise, except by litho process	35%	1½c. lb.	332
Cloth lined or reinforced papers	35%	35%	332
Greaseproof and imitation parchment, n.s.p.f	35%	2c lb. +10%	332
Bags and envelopes, and other articles composed in chief value of the foregoing, n s p f	35%	5c. lb +30%	332
Boxes of paper and mache, covered with any of the foregoing	35%	45%	332
Albuminized or sensitized for photographic purposes	25%	30%	332
Plain basic papers for albuminizing sensitizing, baryte coating, of for photographic processes	15%	3c. lb +10%	332
Tablet paper	25%	3c. lb. +15%	334
Tissue paper			
Under 6 lbs to ream	40%	6c. lb +15%	331
Over 6 lbs to ream	30%	5c. lb +15%	331
Transfer paper lithographic, not printed	25%	50%	332
Typewriter paper	25%	3c. lb +15%	334
Uncoated papers	35%	35%	332
Wrapping paper, n s p f	25%	35%	336
Writing paper	25%	3c. lb. +15%	334

BASKET CLAUSE

Paragraph 340 covers all papers and manufactures of paper, or of which paper is the component material in chief value, not specifically provided for in Section M, with a duty of 25%

FREE LIST

Article.	Underwood Simmons, Oct. 3, 1913	Payne Aldrich, Aug. 5, 1909	Paragraph No
Books			
For use of U.S. Government	Free		432
Over twenty years old	Free		433
Printed in foreign languages......	Free		434
Music in revised print for the blind	Free		434
For religious institutions.	Free	Free	435
Casein of lacteurine	Free	Free	531
Charts			
For use of U. S. Government	Free	Free	432
Over twenty years old...........	Free	Free	433
For religious institutions..........	Free	Free	435
Coal, anthracite and bituminous....	Free	45c. ton	459
Cotton bagging waste	Free	6-10c. sq. yd.	416
Documents issued by foreign governments	Free	Free	433
Engravings			
For use of the U.S. Government...	Free	Free	432
Over twenty years old...........	Free	Free	433
For religious institutions..........	Free	Free	433
Fibres and grosses, etc............	Free	Free	502
Gasses, fibres, etc.................	Free	Free	502
Gunny baggaing waste............	Free	6-10c. sq. yd	416
Hydrographic charts issued to scientific associations, etc...........	Free	Free	433
Junk, old.........................	Free	Free	526
Lithographic prints—			
Over twenty years old...........	Free	Free	433
For religious institutions..........	Free	Free	435
Newspapers issued regularly	Free	Free	560
Paper stock, crude of every description	Free	Free	571
Parchment paper..................	Free	Free	573
Periodicals issued regularly..........	Free	Free	560
Printing paper valued at not above 2½c lb	Free	3-16c lb	572
Publications			
Issued to scientific associations etc	Free	Free	433
For gratuitous circulation..	Free	Free	433
Pulp wood.........................	Free	Free	649
Rag pulp	Free	35%,	651
Rags, n.s.p.f......................	Free	Free	590
Soda ash.........................	Free	1c. lb.	600
Stock, paper of all descriptions......	Free	Free	571
Sulphur			
Crude...........................	Free	Free	619
Refined..........................	Free	$4 ton	619
Text books for educational use......	Free	Free	434
Twine, made from New Zealand hemp, etc	Free	Free	423
Vellum paper......................	Free	Free	573
Waste from cotton and gunny bagging	Free	6-10c sq yd	416
Wood pulp			
Mechanically ground	Free	Free	651
Chemical, unbleached	Free	1-6c lb	651
Chemical, bleached,...............	Free	¼c lb	651

MR. HASTINGS ON NEW TARIFF.

(Special to Pulp and Paper).

New York, N.Y., October 10, 1913.

"The paper and pulp interests in the United States have hardly recovered from the shock of the proposed tariff revision, as affecting the paper and pulp industries." said Arthur C. Hastings, president of the American Paper and Pulp Association, when interviewed today in his office at 50 Church Street, Briefly, while congress has left a duty on many of the materials they import, they have taken all the duty off of news print paper and wood pulps, not for the benefit of the public, but because of the political pressure brought to bear upon them by the Newspaper Publishers of the United States, not all of whom, however, have taken as selfish a view of the matter as most of the metropolitan papers. There has also been pressure through the personal interest of legislators in their home papers, who believe a reduction in the duty would mean a large profit to the publications

"Other than the gross favoritism shown in the present Underwood bill, I should say as a whole, it is not unreasonable. Time will tell.

"As to the cheaper cost of living, I think that there is just about as much chance of getting cheaper living under our civilization as there is of buying a penny newspaper for any less than we have been paying under the former tariff. It will be a change, however, and will undoubtedly lead to other political changes.

HIGH COST OF WASTE

(Special to Pulp and Paper Magazine)

New York, October 13, 1913

The high cost of old waste paper stocks is causing serious thought to manufacturers of paper box board. This situation, however, does not seem to affect the American Straw Board Company, a $3,000,000 corporation, whose executive offices are at 141-149 Wooster St., this city, C. W. Bell, general manager of that Company in his efforts to show the board consumers that products of Straw makes eqaully as good boards as dirty old mixed papers, cites that the packers, shippers and dealers in waste paper throughout the United States are thoroughly organized into local associations. state or district associations and a national association. "They have a thorough system of local, wealthy and influential dealers upon whom the smaller packer depends for cash payments, has resulted in a thorough and complete control of the prices of this waste material

"The immediate result at this date is an advance of another dollar per ton in the central west with very limited offerings even at this advanced price for October delivery. The situation in the East, central at New York city, has been most remarkable, prices for the common grades of mixed papers having advanced from 25c. per 100 lbs. to 40c., and some packers having selected stock are demanding 25c. to 50c. per 100 lbs. This means an arbitrary and compulsory advance in the cost of Chip board to the manufacturers of same, of from $4.00 to $5.00 per ton. and no manufacturer has pretended to make a gross profit in manufacturing of over $3.00 per ton. Most of the box board manufacturers have been compelled to advance their prices, and have endeavored to form a counter organization to hammer down the price of paper stock against the inevitable control of the association referred to above.

"Consumers will soon realize that they do not have to use paper box board made from dirty mixed papers and promiscuous waste gathered in the slums, alleys and on the dumps of this country, for they can buy boxboard made from clean, virgin straw, subdued to fibre by cooking in a solution of carbon lime, and thoroughly washed in the process of manufacturing strawboard. Paper stock is not washed or purified in any way in manufacturing boxboard from old papers. As every well informed box maker knows, properly made Straw Board will produce a better box in every way than any other kind of boxboard that has yet been offered.

"The price of raw material, or Wheat and Oats Straw is fixed from season to season by the wheat crop and oats crop. The price of straw is today fixed for 9 months, hence upon a reasonable basis and there is an ample supply. Our quotations are revised to October 10th, will not have to be advanced on account of any advance in raw material during the next 9 months.

MONTREAL MARKETS.

Montreal, October 14th, 1913.

There has been a strengthening of prices for mechanical pulp, due to the increasing demands from the United States. Low water conditions prevail here still, but not to the extent of interfering with grinding operations, as is the case in some parts of the Eastern United States. Some big orders for sulphite have been received from American firms, and the outlook for that product is better than ever. News print, which for some time was slack owing to the increased output not having been absorbed, is in better demand, and some makers expect a strengthening of the market when the tariff bill is in operation.

ABITIBI PULP AND PAPER.

Directors Inspect Progress of Building. 600 Men to Work in Bush.

Between 50,000 and 60,000 cords of pulpwood will be taken out for the Abitibi Pulp and Paper Company during the coming winter months and this cut will be floated down rivers to the Iroquois Falls plant of the company in the spring. This will be sufficient to keep the plant running at capacity for the summer of 1914, and allow a start to be made in March or April next.

Excellent progress is being made with the buildings at the Falls and the party of directors and shareholders who went north in a private car last week were greatly surprised at the progress made since the last visit. The party,headed by the president, Mr. F. H. Anson, of Montreal, included vice-president Shirley Ogilvie, of Montreal, and directors and shareholders including, Sir Thomas Tait, Montreal, Hon. W. K. George, Toronto; Messrs. J. B. Fraser and W. K. Egan, of Ottawa; Messrs. N. C. L. Mather and Hugh Murray of Toronto and Mr. N. B. Stark of Montreal

Three camps have been established for cutting pulpwood on the company's reserve. Two of these camps are located on the lower Lake Abitibi, while the third is in the river itself. In all some 2000 men are employed in these camps and the cutting has commenced.

At the falls, the power house is the only work which is slightly behind schedule. The wet machine room has been completed while the wood room will be ready by the fifteenth of the present month. The generator building and power house will be under cover early in December when every thing will be in readiness for the installation of machinery, and this winter work will be completed in time for the first wheel to turn in the new mill in either March or April. The machinery shop is also practically completed, while other buildings which the company are erecting on the townsite of Iroquois Falls are nearing completion. On November 15th, the new Iroquois Hotel will be opened. This hotel will accommodate 50 and while transients will be accommodated there, it is with the intention of giving quarters to employees that the hotel was erected.

The Couchiching Falls dam has been started and the gang of men employed at that point are expected to complete the work by December 1st. This dam was swung across the Abitibi river, just above the falls, and only a few miles from the lake outlet, and will keep the water dammed at a height of seven or eight feet above high water mark. As Abitibi both upper and lower lakes contain an area of 355 square miles, this will assure the company of a reserve that will give plenty of water for perpetual power the year round. Log slides will be erected in the dam, while other rapids and falls on the Abitibi will not be fitted up with log slides as none on the wood can be damaged in running these swift places.

At present 510 men are employed on the works wlth 200 in the bush, but during the winter months this staff will be increased somewhat as between 600 and 700 men will undoubtedly be employed in the woods during the winter.

The Western Canada Paper Company which has a daily output of 20 tons of building paper and 15 tons of wrapping, at Sapperton, on the Fraser River, has for its officers this year: President, Barclay Bonthrone, Vancouver; vice-president, A. E. White, Vancouver; directors, E. F. Allen, Joseph Caldwell and A. S. Brake, Vancouver; C. J. Bastedo, who was formerly with the Canada Paper Co., of Windsor Mills, Que., and the J. R. Booth Company, Ottawa is general manager, the superintendent being C. S. Shandley, who for ten years previous to coming to the Coast was with the E. B. Eddy Company, of Hull, Quebec.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR WEEK ENDING SEPTEMBER 13th, 1913.

	Quantity	
Bleached Chemical Dry	566	tons
Unbleached " "	8,933¼	"
Chemical Wet	100	"
Mechanical Wet	6,132	"

Mechanical Wet:—

Canada	1024 tons
Newfoundland.	———

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR WEEK ENDING SEPTEMBER 10th, 1913.

	Quantity	
Bleached Chemical Dry.	190	tons
Unbleached " "	4,679	"
Chemical Wet	351	"
Mechanical Wet.	24,570	"

Mechanical Wet:—

Canada	8,388 tons
Newfoundland	3,972 "

At a recent meeting of the directors of the Toronto Paper Manufactuirng Co. held in Toronto, Garnet P. Grant resigned as President of the company and R. S. Waldie was elected as his successor. Mr. Waldie has been a director of the company for some ten years and for the past few months has been Managing Director. He is largely interested in the lumber business and is Vice-President of the Victoria Harbor Lumber Co. His father, John Waldie was one of the original founders of the Toronto Paper Mfg. company in 1880 when the mills were erected at Cornwall. Mr. Grant will continue as a director and J. J. Sullivan, a well known paper expert, who has been associated with the company in a consulting capacity, was added to the Board. Certain improvements, which are being made to the sulphite plant with a vlew to doubling its capacity and also putting in a loft for turning out loft dried papers, are well under way and, when completed, the mills will be in better shape than ever to take care of the needs of customers.

The Victoria Paper and Twine Co., 415 King Street west, Toronto, who carried a surplus stock of toilet, tissue and all kinds of wrapping papers in the basement of the Reilly building at 443 King Street, suffered a heavy loss by fire last week. The company had between ten and fifteen thousand dollars worth of paper stored in the latter place and the stock was completely ruined. The loss is covered by insurance. Charles V. Syrett, managing director of the company, reports that their regular business will in no way be crippled as the stock in the warehouse is unusually heavy and well assorted and all orders will be promptly met.

PULP MAKING BEGUN IN AUSTRALIA.

The manufacture of paper pulp has just been commenced in Australia and is an indication of the establishment of a new industry there. The Yarraman Works, the new establishment, is in Queensland. Sir William McGregor, the Governor of that State, who officiated at the opening ceremony, trusted the next move would be the erection of paper mills, as great pecuniary advantages in manufacture were lost by having to export the pulp to the southern mills. His Excellency considered there was an abundance of raw materual and mentioned prickly pear and grass as being available in great quantities.

COMMISSION CONTROL OF ONTARIO WATER-POWERS.

"In view of the comprehensive schemes outlined by the Dominion Government for the creation and improvements of waterways in connection with the St. Lawrence River, Welland Canal, French River, Sault Ste. Marie, Trent, Ottawa and others, involving a large expenditure of public money; and in view of the extensive power developments which are possible in consequence thereof; also, in view of the rapidly increasing power requirements of the Province, be it resolved that this Association request the Dominion Government to put all such water-powers under the jurisdiction of the Hydro-Electric Power Commission of Ontario, to be developed by them for the use of the municipalities of the Province for the benefit of the people."

In adopting this resolution at its recent convention in Toronto, the Ontario Municipal Electrical Associaton, a body whose membership consists chiefly of mayors and aldermen of various cities and towns of Ontario, fairly representative of the whole province, has expressed a general note of disapproval against control by private corporations of the valuable assets to be developed from waterpowers. The resolution is going forward to the Dominion Government in the form of a memorial, it being pointed out by those prominently in support of the action, that it frequently happened that the control of these powers passed on to private companies before the people got a chance to express any wish to control them for themselves.

The Holden-Morgan Co., Toronto, manufacturers of bread wrapping machines are filling an order for six machines for the Canada Bread Co. who have factories in Toronto, Montreal and Winnipeg. The first of these machines has been delivered and installed in the Winnipeg branch. The machine wraps from 2,000 to 2,500 loaves an hour using any kind of paper which is fed from a revolving roll like those seen on perfecting printing presses. Each loaf is sealed air tight with a firm double fold at the bottom while the end is fastened by a sticker. Bread wrapping is rapidly coming to the front and already three Toronto plants are using machines while two bakeries in Winnipeg possess them. In Calgary all bread is wrapped as required by by-law. This is the only city that so far has passed such a rigid regulaton but Dr. Hastings, Medical Officer of Health of Toronto, has intimated that as soon as the machines can be obtained by the bakers in sufficient quantities, he will issue an ordinance requiring all loaves to be sealed. In the meantime many bread manufacturers are wrapping portions of their output by hand and find that the demand for the wrapped loaf is steadily on the increase. Several western bakers have ordered machines and a number of paper mills intend manufacturing for the bakers' trade.

At the public sale held renectly at Sault Ste. Marie, the property of the Michigan and Lake Superior Power Co. was disposed of to satisfy the claims of first mortgage bondholders aggregating over five million dollars. A. S. Weil, of Philadelphia, representative of the company, was the only bidder, his bid being $2,500,000. The holders of the first mortgage bonds hold over ninety-nine per cent of the bonds. The plant has been in the hands of the Receivers for some years but it is said that as soon as the Receivership is ended, the property will be taken over by the Michigan Northern Power Co. Additional equipment will be bought, repairs made and thirty-thousand more horse power developed.

Efficiency of the Machine Shop

There is no item in the cost sheet which varies so much with the individual mill as does the cost of repairs. The reasons are many, as the state of the mill machinery and buildings, cost of repair materials, waste of repair materials, wages and so on but nothing is so important as the efficiency of the machine shop and the repair crew.

The efficiency of this department is not only responsible for the cost in repairs per ton produced, but,

And here comes the main thing!

also for the output of the mill as preventing repairs and quick handling of break downs in the mill has just as much or more to say in output as has the hard driving of the machines and men in the mill.

A very important thing in a machine shop is to have every man trained to do repair work, not only millwrights but also machinists as well as apprentices and helpers.

Two men, one experienced and a helper or an apprentice are usually enough to send to any repair job. There are usually one too many. The mill men is charge should help out the crew and where heavy machinery has to be shifted a man specially trained and usually, and best, belonging to the yard crew, should be put in charge of this part of the work with the experienced machine man as his next man. But one "boss" is enough, the rest of the crew should work!

At large mills the master mechanic should have an assistant rather than foreman in each separate shop and this assistant should not only be a competent foreman for all the shops but should also be competent to supervise repair work in town work with the master mechanic when necessary.

Every man working in the machine shop, mechanics as well as men of the repair crew should as much as possible have piece work or time bonus.

Don't be afraid of giving a high bonus to the machinist in case he can shorten the time of making a machine work in which the running of the mill or a part of it is depending and put the very best machinist you have on the job!

See to it that you always have plenty of work at hand for your repair crew, buy cast but not machined spare parts when you can see your way to machine them in your own shop with your ordinary repair crew, but do not keep machinists where you do not need them for repairs in the mill as well, it pays you better then to buy standard fittings from the manufacturers.

The mill wrights are, next to the master mechanic and his assistant, the most important men of the machine shop crew. See to get the very best millwrights it is possible to secure and regardless of the wages they demand. Train them by giving them each charge of the repairs in certain departments of the mill and give them a bonus on the production of the departments for which they are responsible, this will make them interested to keep everything in such repair that breakdowns seldom occur and when they occur get repairs done as quickly as possible.

A well paid man sticks to his job and a man used to a work will do it in half the time.

When a breakdown occurs, see if it is possible to make a quick temporary repair so that it will last till next stoppage and repair it properly when there is time.

It is impossible to make a rush job a good one.

The different shops should if possible be arranged together; this will to a large extent lessen the supervision and the foreman can devote much of his time to increase the efficiency of the shops.

It is needless to say here that the experience and personality of the master mechanic has more to say to the efficiency of the shops than anything else.

NEW PATENTS

All patents are specially comyiled for the PULP & PAPER MAGAZINE. Those of United States are by Davis & Davis, Patent Attorneys, Washington, D.C. Full particulars with drawings may be had by addressing the Commissioner of Patents, Washington, D.C., enclosing five cents per patent. Canadian patent particlulars may be obtained from the Patent Office, Ottawa. In all cases give number of patent. We also carry brief descriptions of important English, French and German patents.

MACHINE FOR MAKING SHEETS OF PAPER-PULP.

By George S. Witham, Sr., Hudson Falls, New York, Patentee.

U. S. Pat. No. 1,072,555.

(Description by Patentee).

The invention relates to machines of the class in which a web of pulp, such as sulfite pulp, ground wood pulp, or other kinds of pulp, included under the general term of paper pulp, is fed from a pulp vat through suitable mechanism, which relieves the pulp of some of its contained water, to press rolls where the cylinder of pulp is formed, which, after having been deprived of more water and having acquired the desired thickness by repeated windings, is cut lengthwise and stripped from the roll which it encircles and formed into a sheet which may then be folded or otherwise treated.

It is now the common practice in paper mills to cut the pulp cylinder by means of a pointed stick held in the hand of an attendant, such stick being plowed lengthwise across the pulp cylinder, the sheet being then stripped from the press roll and folded by hand. Various means have been devised for performimg this operation by power-driven mechanism, but they have not gone into extensive use, while by my improvements I have provided mechanism which automatically severs the pulp cylinder when the desired thickness is obtained, simultaneously loosens the sheet on the cylinder and causes it to drop on to a table or other suitable receptacle where it may be folded or otherwise treated.

In carrying out my invention I form in the peeriphery of the top roll of a set of press rolls a segmental recess in which I place a segmental plate which extends from one end of the roll to the other and over which the pulp cylinder is formed. The plate is hinged to the roll and completely fills the recess except a portion thereof beyond the free longitudinal edge of the plate, which portion provides a groove into which the pulp enters and by which means a line of wet or moist pulp is produced extending from one end of the cylinder to the other and facilitating in the severing operation when the hinged plate is operated. The hinged plate, which I call the severing plate, may be operated by means of hand-actuated devices or by power-operated mechanism. Preferably I employ means by which power-actuated mechanism may be operated to actuate the severing plate when the desired thickness of pulp is obtained. Such mechanism preferably comprises a rod operated by electro-magnetic devices to engage lever mechanism which actuates the severing plate. The electric circuit which is normally open is closed by suitable contacts which may be adjusted to any desired extent to close the circuit at any desired time or when any desired thickness of pulp is formed. By these improvements sheets of pulp of uniform thickness may be obtained in successive operations of the mechanism.

In the accompanying drawings, Figure 1 shows a side elevation of a set of press rolls with my improvements applied. Fig 2 shows a side elevation of the top roll with the severing plate closed and the operating mechanism in inactive position. Fig. 3 is a similar view showing the severing plate open and the operating mechanism in active position. Fig 4 is a perspective view of one end of a set of press rolls with my improvements applied. Fig. 5 is a view thereof partly in elevation and partly in section.

The top press roll A and the bottom roll or rolls B may be of any suitable construction and they are mounted in a suitable frame C. The shaft G of the top roll may be carried by levers D hinged at (D) to the frame and lifted, lowered and adjusted by the well-known mechanism indicated at E and F.

Fig. 1.

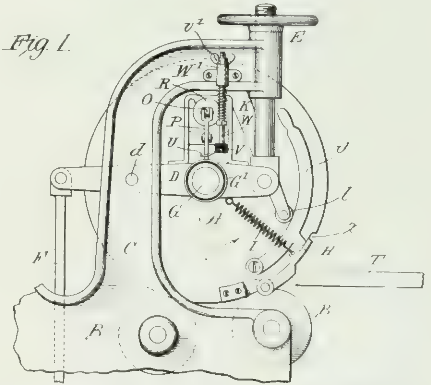


Fig. 2

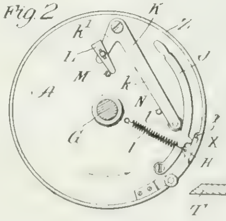
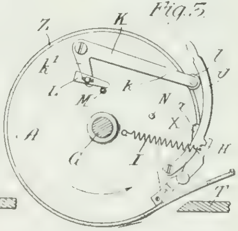


Fig. 3



The roll A has a continuous unbroken cylindrical surface except at X where a segmental recess is formed which extends from one end of the roll to the other and receives a segmental plate H which I call the severing plate. This plate completely fills the recess except that a groove (x) is left between one longitudinal edge of the plate and the longitudinal wall of the recess next this edge. The opposite ends of the plate extend a short distance beyond the opposite ends of the roll, and the plate is hinged to the ends of the roll as indicated most clearly in Fig. 4. The operating mechanism for the plate may be of the same kind at each end. In the drawings I have shown the mechanism at one end only of the roll, it being understood, however, that if necessary the mechanism may be duplicated at the opposite end thereof.

A spring I attached to the end of the cylinder and to the plate H normally holds the plate in the recess X and as the press rolls are revolved a cylinder of pulp Z is formed on the periphery of the top roll in the usual way and the pulp is compressed and deprived of much of its moisture. By reason however, of the groove (x) a line of moist pulp is left which extends from one end of the roll to the other along the severing line and this greatly facilitates the parting of the cylinder when the severing plate is actuated. The plate H may be actuated by one or more hand-operated levers J, such lever being normally held in its inactive position by the plate H which is held closed by the spring I. By moving the lever J outwardly the plate may be moved on its hinges from the position shown in Fig .3. When thus moved the pulp would be parted along the ling of the groove (x), the moist pulp in the groove facilitatine in the parting operation. At the same time as the outer end of the plate moves radially outward the pulp sheet will be drawn circumferentially across the plate, thus being loosened from it and the weight of that portion of the pulp sheet thus loosened will cause it to separate from the plate and drop onto the table in the manner indicated in Fig. 3. This is an important feature of the invention. In some other machines the pulp sheet has been parted by a radially moving knife but it is difficult to cut pulp in this way and when so cut the pulp will still adhere to the roll and has to be stripped therefrom by hand or specially provided mechanism, whereas by my improvements the pulp is not cut but is severed or pulled apart along the line of a wet portion of the pulp cylinder and at the same time has a sufficient portion loosened from the cylinder to cause it to drop away by its own weight from the roll so that the continued revolving movement of the roll causes the entire sheet of pulp to be delivered.

Fig 4.

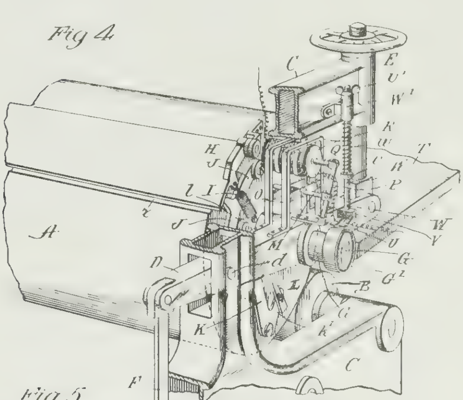
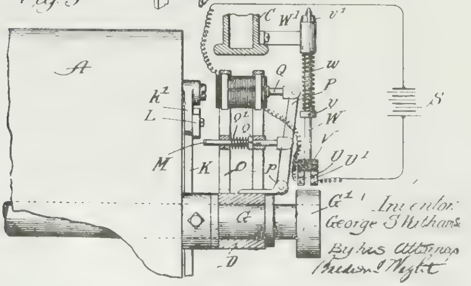


Fig. 5



It will be observed that the severing plate H is so constructed and so mounted that it forms a continuation of the top roll surface, the only material break in the entire periphery of the roll being at the groove (x), but this groove is shallow and may be made quite narrow.

In order to actuate the severing plate by power mechanism and to also cause such mechanism to automatically operate when the desired thickness of pulp has been formed, I preferably employ the devices shown in the drawings, although other mechanism might be used to effect this automatic operation.

As shown a lever K having a long arm (K) and a short one (K′) is pivoted to one end of the top roll. The long arm of the lever carries a roller (L) engaging the lever J which is curved as shown. The shorter arm of the lever carries an adjustable dog L which is adapted to engage a rod M hereinafter more particularly referred to. A pin N limits the outward or inward movement of the lever K, and when said lever is moved to its fill extent upward and outward the plate H will be fully opened. It will be understood that the mechanism just described may be duplicated at the opposite end of the top roll. The rod M extends through a frame O mounted on the lever D and it is provided with a head (O) engaged by a spring (O′) which normally holds the rod out of the path of the dog L, but when said dog is moved into the path of the dog and as the roll revolves, as soon as the dog engages the rod the lever K will be actuated to open the severing plate in the manner clearly shown in Fig. 3. The dog is adjustable so that it may be made to engage the rod M at the desired time. The rod M may be automatically operated in various ways but I preferably employ the devices shown.

As illustrated the rod M is joined to the middle portion of a lever P hinged at (P) to the lever D and carrying at its upper end a rod or core Q extending into a solenoid magnet R energized by a battery S. The opposite poles of the battery are connected to contact fingers U, U′ which are attached to a block of insulating material V carried by a rod W supported by a bracket W′ attached to the main frame. A spring (W) interposed between the bracket and a collar (V) on the rod tends to move the rod downward but its normal position may be determined by the adjustable nut (V′) at the top of the rod which bears on the top of the bracket. The shaft G carries a metallic hub G′ which is suitably insulated from the shaft and is adapted when brought into engagement with the contact fingers U, U′, to close the circuit through the solenoid and cause the rod M to move into the path of the dog L and thus cause the severing plate to be actuated. It will be understood that the contact fingers U, U′ are supported on the stationary frame and that the shaft G rises with the top roll as the pulp cylinder Z increases in thickness and as soon as the shaft has thus risen to a predetermined extent, the circuit will be closed and the severing operation performed. It is obvious that the contacts may be adjusted vertically to any desired extent and thus the thickness of the pulp cylinder may be very accurately determined. It is also obvious that by this mechanism successive sheets of pulp of precisely the same thickness may be formed by the same set of press rolls which is a matter of considerable importance. Preferably the electro-magnetic operating devices shown at one end of the roll in the drawings is duplicated at the opposite end of the roll, as I preferably employ two operating levers J and two actuating levers K. I have endeavored to make it clear that the details of construction may be varied and some parts of the invention may be used without necessarily using other parts.

I claim as my invention:

1. A press roll for pulp sheets formed with a hinged severing plate and provided with means for actuating said plate.

2. A press roll for pulp sheets formed on its periphery with a segmental recess and provided with a hinged severing plate.

3. A press roll for pulp sheets provided with a hinged severing plate and a groove in line with the free edge of said plate.

4. A press roll for pulp sheets formed with a segmental recess in its periphery and provided with a segmental severing plate partially fitting said recess, and hinged connections between said plate and roll.

5. A press roll for pulp sheets having a recess in its periphery, a plate disposed in said recess, means for pivotally connecting said plate with the press roll and means for moving said plate about its pivotal connection to sever the pulp cylinder formed on the roll.

6. A press roll for pulp sheets provided with a severing plate having a hinged connection with the roll and a portion which is movable radially outward from the roll to both sever the pulp cylinder and to loosen the connection between the severing plate and that portion of the pulp which covers it.

7. A press roll for forming pulp cylinders provided with a severing device, and electro-magnetic devices for operating said severing device.

8. A press roll provided with a severing device for the pulp cylinder, lever mechanism for operating said severing device and electro-magnetic devices for bringing said operating levers into action.

9. A press roll provided with a pulp severing device, operating levers therefor and electro-magnetic devices automatically brought into operation when the desired thickness of pulp is obtained for effecting the actuation of said severing device.

10. A press roll provided with a pulp severing device, a lever operatively connected therewith, another lever engaging said first mentioned lever, a dog carried by said second mentioned lever, a rod adapted to engage said dog, and electro-magnetic devices controlling the position of said rod.

Brampton is to have a new industry and erection has started on a two storey builing on Park Street in that town The product turned out will be gum paper and, it is understood, that wax paper may also be produced. Capt. R. R. Barber, son of John R. Barber, the veteran paper manufacturer is at the back of the new enterprise and associated with him is E. R. Colbert general superintendent of the Georgetown Division of the St. Lawrence Paper Mills. Mr. Colbert is interested only in a financial way and the report that he was severing his connection with the Georgetown mills is incorrect. It is believed that the new mill has a good future ahead of it.

John M. Imrie, secretary of the Canadian Press Association, has returned to Toronto from an extended trip through the prairie provinces. All the western Press Associations are merged ln the Canadian Press Association as already announced, and there are now three territorial divisions of the parent body, known as the Manitoba-Saskatchewan Division, the Maritime Province Division and the Alberta and Eastern British Columbia Division. Steps are now being taken to have the consolidation approved by all members of the consolidating associations who were not present at the Conventions and as part of that work Mr. Imrie spent some time in conducting District Press and Cost Conferences throughout Western Canada.

British Trade News

(Special to the Pulp & Paper Magazine).

London, October 9th, 1913.

Since the middle of September there have been serious outbreaks in the English and Irish labor centres and naturally pulp and paper interests have been greatly affected. Just at the time when large consignments of pulp and paper were arriving from Canada and Scandinavia at Manchester, a general strike was declared at the docks and tons upon tons of merchandise and raw material and manufactured goods have been held up. The imports of wood pulp at the port were being enhanced by full cargoes and parcels loaded at Montreal, Quebec, Chicoutimi and Newfoundland, and many of the vessels had to stand by for a week before one ton of stuff was got ashore. Manchester port is an important landing place for Canadian pulp, paper and boards, and it is feared that when the time of reckoning comes to ascertain the damage and loss sustained through the strike, the results will be most unpleasant. Upwards of 130,000 tons of pulp are imported annually at Manchester from Canada and Scandinavia, so that anything in the way of a dock strike means a serious thing to these countries. One Nowegian steamer had 12,000 bales of wood pulp on board and not one bale could be landed till there was a cessation in the strike. Of course, the strike also affected the paper mills of Lancashire and from a conversation your correspondent has had with some of the mill men they appear to have had a crucial time. In Dublin, the Irish capital, there is a wholesale lock-out in the labor world and serious riots. Canada trades direct with Ireland in woodpulp boards and millboards to the extent of $53,000 a year, and during the past three weeks not one scrap of pulp, paper or even boards has been delivered for the Irish consumers. At Liverpool and Birmingham there were spasmodic strikes, but only the delivery of paper from home and foreign sources was dislocated.

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We are hearing a great deal lately about bamboo and also White Nile Sudd (papyrus) as materials for making pulp for the production of paper. The subjects are becoming wearisome as no advancement, from a commercial point of view, seems to have been made recently about placing either bamboo or sudd on the market. In London, however, we are being told of glowing prospects by all the trade papers, some of which get the length of saying that "More is likely to be heard of sudd for paper making in the future." Captain Bennett-Dampier, the managing-director of the Sudd Fuel (Suddite) Ltd., of London, has been investigating in the Soudan the commercial feasibilities of converting papyrus into pulp and we learn from him that it will be possible to place on the London market at a cost of roughly $15.24 per ton (including transport, canal dues, etc.) unbleached papyrus pulp, the sale price of which has been estimated by some experts at $31.20 per ton. This would leave roughly a net profit of about $14.40 a ton of 20 cwts. Herr von Rath formed a company in London in 1912 with a capital of 5,000,000 marks for the purpose of exploiting the sudd resources of the White Nile and last spring the Sudd Fuel, (Suddite) Ltd., was formed. A factory has been erected at Khartum for the production of briquettes from the sudd and experiments are being made on an extensive scale with the papyrus tracts for which the Soudan is notable.

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The wood pulp trade of the United Kingdom has sustained a severe blow by the death of Harry Bland Wood, Managing Director of Harry B. Wood, Ltd., pulp importers and agents, of Manchester City. (and a vice-president of the Wood Pulp Association), which occurred on Sept. 23rd.

There is keen competition just now between the paper mills of the North of England and those in the South of England for the supremacy of the London market. The mills in the south have greatly increased their out-put and the companies who own them are not lacking in acquainting the trade of the great hold they have on the market of the metropolis. But when one comes to examine the situation closely one of the causes why the southern mills have gained headway is that the northern mill owners have been greatly handicapped by labor unrest, higher railway rates, and heavy freightage. The labor unrest has during the past six months caused a good deal of short time shifts in the mills and to make matters worse dock strikes have added considerably to the inconvenience and annoyance of mill owners But it must not be admitted that the northern mills have lost any hold whatever on the London market, because a couple of southern companies have managed recently to make headway in it. If the southern mills had to contend with half the difficulties the northern ones have, and if they supported the northern owners a little better in the matter of labor questions, there would be less crowing over the position of the London market, which is quite capable of looking after itself. The northern paper mill owners have had a very hard and crucial time lately with strikes and other significant subjects, but, notwithstanding all, they have maintained their excellent export trade and kept the London supply up even better than it was two years ago. If the northern mills have suffered any loss at all, that loss may be attributed to the huge imports from Newfoundland in London.

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To use the words of Mr. Roosevelt the China Clay workers who have been on strike in Cornwall for over two months have been "beaten to a frazzle" between the employers and the police. They have been demanding a minimum wage of $6 a week, which has been refused, and to add insult to injury the police have broken many skulls with their batons. The strikers for one month have held up the China Clay industry, so much so that stocks were run down and America ran short, in addition to several continental industrial places. During the last two weeks the men got tired of being unemployed and about 1600 have returned to the pits to work under the old conditions. The loss to the industry has been enormous, but it is hoped the Canadian industry has benefited by the lull in the export trade from Fowey. While the strike prevailed there has been a great rush for mineral white and other similar forms of paper makers loadings. It is estimated that the loss in wages alone in Mid-Cornwall is something like $388,000 inside of the two months.

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It is reported in London that 1,700 tons of dry sulphite has been shipped from Drammen, in Norway, to the United States whilst Sweden has also sent to the same destination a steamer with a similar cargo. Stocks in Norway and Sweden have been accumulating while the tariff question was being settled, According to a Government report issued in London recently Sweden has had a most successful year in 1912 with mechanical, sulphite and sulphate. Gothenburg exported 191,527 tons of pulp in 1912 (175,916 tons in 1911) Halmstad 22,200 tons (18,900 tons in 1911); Uddevalla and Helsingborg 3,527 tons (5,371 tons in 1911) and 141,074 tons of paper (126,336 tons in 1911). The report says that the financial systems and trade of Sweden is excellent, whilst that of Austria-Hungary is in a very bad state.

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The Burnley Paper Works in Lancashire have declared a dividend at the rate of 10 per cent and Edward Lloyd Ltd., Sittingbourne Mills in Kent, a dividend of 24 cents per share placing $96,000 to reserve same as last year.

Mr. George v d Busche, chairman of Becker & Co., Ltd., London, has had a judgment delivered in his favor in one of the highest courts in Sweden. Through an intermediatory he accepted and entered into a contract for the supply of 2,000 tons of wet pulp by the Ellingeverkens, of Malung, at 31 krones (one krone equals about $4.82) but the pulp makers objected to brokerage commission for the intermediatory and declined to carry out the contract. Legal proceedings followed and Mr. Busche has been awarded 6,550 krones, with 5 per cent. interest from 7th Nov. 1905 until the date the money is paid him as well as all costs of the case which amount to 1,853.20 krones.

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Messrs. Gordon Watts & Co., London, pulp importers, have obtained the controlling interest of J. E. Salvesen & Co., Ltd., Mr. J. E. Salvesen retains his interest in the firm as heretofore. The fact that these two firms should be merged should greatly enhance the quantity of pulp they get through in the year.

JOHN NORRIS.

(Special to Pulp and Paper Magazine.)

New York, N.Y., October 13th, 1913.

With the passing of the new Tariff and his work completed, John Norris ,chairman of the Paper committee of the American Newspaper Publishers' Association has asked to be relieved from further duty on the committee. In a letter addressed to the members of the association, his associates of the paper committee, Don C. Seitz and Herman Ridder, says; "Coincident with the signing of the tariff bill, John Norris retires from your paper committee. The abolition of the tariff in allrespects as affecting news print has been accomplished. The members of the committee who have been associated with Mr. Norris through the long and trying period since the associaton undertook to shake off the oppression of the paper combinations, wish to express their obligations to him. He has been indefatigable, energetic and always on the job. His work has involved long journeys, deep study and continuous application. Above all, his work has been done openly, without attaint of lobbyism, or the use of undue influence . He won our case by the use of tact and facts. We believe that the association will join us in thorough appreciation of Mr. Norris' extraordinary services."

The final report of the committee under Mr. Norris' chairmanship was made on October 3, and briefly narrates the placing of free pulp and printing paper in the tariff bill. It says; "The committee on paper reports that the tariff bill signed today by President Wilson admits free of duty news print paper and wood pulps from all parts of the world and without qualification of any sort. The purpose of the creation of the paper committee has been accomplished. The market for paper buyers has been broadened to the utmost. Retaliation against foreign countries in pulps and papers supplies has been stopped. The days for a tax upon knowledge are gone. The price of $50 per ton which was fixed by paper makers five years ago, has been reduced by production continually appearing upon the market. The additional output for the years 1912 and 1913 has been estimated on a duty of $6 per ton which prevailed at the outset of the paper struggle has been wiped out. The consumption of news print paper in the United States exceeds 1,500,000 tons per annum so that the gain to publishers from conditions largely induced by the paper committee's activities may be estimated at from nine to twelve million dollars per annum. Publishers are to be congratulated upon the end of the contest. Uncertainty is over. Manufacturers can now calculate upon established conditions."

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

The Mohawk Valley Paper Company, of Little Falls, N.Y., has just been incorporated with a capital stock of $100,000. The new company will take over the paper mill and business of the Astoraga Paper Company which recently went into the hands of the receivers. The directors are C. H. Burrows, Martha C. Burrows, W. F. Lansing and D. H. Burell. It is expected that the mill will be in operation within the next week or ten days.

* * * *

The great Northern Paper Company is completing the installation of a new paper machine at East Millinocket, Me., which will enlarge the capacity of the mill about one-fourth and will give employment to about 100 more men. Work on a brick extension to the mill has been going on all summer and the paper machine will be installed and ready for operation in a short tine.

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The California Paper and Board Mills' plant, at Antioch, Cal., is turning out daily about thirty-five tons of box board, with one 10 inch machine, and within sixty days, when an additional 110-inch machine has been placed in commission, the total output will be increased to 75 tons. Although this new plant was started up several months ago, it is not entirely completed and Manager A. H. Dougall is very busy installing the balance of the machinery. This plant is thoroughly up to date in every respect, and the buildings are of steel and concrete with all of the equipment on one floor. Large quantities of refuse paper are used for board and more than 4,000 tons of straw annually for straw board.

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A report from the middle West states that the recent starting of the Chicago Tribune news mill in Canada will undoubtedly result in showing a material increase in imports in the month of October.

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The new machine for the manufacture of crepe paper at the plant of the Kankauna Paper Novelty Company has arrived, and as soon as an addition, 25 x 25, to the building is completed work installing it will be commenced. It is expected the machine will be set up and ready for operation by the middle of the coming month. The company planned on having its plant in operation by October 1, but delays in getting machinery has advanced that date nearly sixty days.

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Advices from Fowey, England, during the past week state that the strike among the dock workers there which has tied up shipping at that port for several weeks, and delayed the shipment of china clay, has been ended, and vessels long awaiting clearance will be discharged. This means that regular shipments of China Clay, will probably be resumed in the very near future. It is thought that several steamers will be quickly loaded, as there is said to be an accumulation of clay awaiting shipment to Boston, Portland, and American ports.

The big mill of the Pacific Board and Paper Company, of Lake Union Ore., says a press dispatch has been destroyed by fire, entailing a loss of $150,000. The cause has not been determined. The insurance amounts to $80,000. Three years ago the plant was erected by a Seattle corporation, of which James A. Stirrat is president, and Augustus Sutherland, secretary and treasurer.

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The Interstate Commerce Commission on October 1st suspended until April 3, 1914, the increases in the freight rates on paper in carloads from Milwaukee Wis., to destination west of that point, the rates being factors in the making of through rates from the East to the destination. The proposed increase will involve an extended investigation by the commission.

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Work on the new $100,000 dam at Combined Locks, Wis., is advancing rapidly these days. Low water of the last few weeks has played into the hands of the contractors who for the most part during the last two years have had trouble on account of unusually high water. It is expected the dam will be completed some time next month.

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The offices of the Michigan Pulp Wood Company were moved on Oct. 1. from Sault Ste. Marie to Brimley. Mich., where the Company's plant is located. At the annual meeting of the company held recently a reorganization was effected former President C. H. Griffin and Thomas Bailey, secretary-treasurer and general manager resigned. The following new officers and directors were elected:—George M. Sterns, president; W. D. Russell, Vice-president, W. E. Johnson, secretary-treasurer; F. G. Simmons, assistant secretary; N. B. Sprague, assistant treasurer, George M. Sterns, W. E. Johnson, C. E. Burleson, W. D. Russel, R. Pagenstecher, directors. August Gitare was made manager.

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The United Paper Board Company, of Jersey City, New Jersey, has been granted a license to do business in the State of Indiana. Three of the Company's plants are located in Delaware County at Yorktown, Eaton and Muncie. They are a part of the old straw board trust whic went into the hands of a receiver and were purchased by the new company. It is probable that the plants will be reopened.

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The Universal Paper Bag Company has broken ground at New Hope, Pa., for a $75,000 addition to its plant. The building will be of brick and slate, and twice as large as the present structure. The contractors propose to finish the job by January 1.

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Advices from Cornell, Wis., state that the pulp mill of the Brunet Falls Manufacturing Company there has resumed operations and is now running at full capacity ,and has in the neighborhood of 800 tons of pulp stored for future use. Just as soon as new additional equipment, which has been ordered for several weeks arrives, the plant will be in full operation. Extensive plans are being made for the installation of a large pasting machine just purchased, which will enable the mill to produce a high grade of board.

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The International Paper Company has begun to run six days a week instead of five at its mill at South Glens Falls, N.Y., and it is the intention of the officials of the company to so continue. However, it all depends on the supply of pulp and the condition of the water in the river whether the mills will be kept in operation six days a week, or whether it will be necessary to return to the five-day-a-week schedule which has been in force several months, or since the water subsided and reached the lowest point in many years.

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The Western Paper Makers Company of Kalamazoo, Mich., has been incorporated during the past two weeks with a capital of $100,000. Principal stockholders are C. H. Knight and C. K. Williams. The company purposes to make chemical products. Messrs. Knight and Williams are connected with the Paper Makers Chemical Company, of Easton, Pa., and during the past summer they have been making arangements to start the erection of a plant at Kalamazoo. The contract for the erection of the big plant has been let and the contractor has already set a gang of men at work clearing the ground and excavating for the structure. The plant will be located just a short distance from the Kalamazoo Vegetable Parchment Paper Company's plant, and it will be built in two sections. The first building to be erected will be 104 x 118 feet. One section of the structure will be 48 x 116 feet and three stories high. There will be one section 28 x 28 feet, which will be five stories high. It is said the irregular construction of the building is necessary because of the unique way employed in making chemicals. No wood will be used in constructing any portion of the framewood of the buildings only steel and concrete being used.

Ottawa Notes

(Special to Pulp and Paper Magazine).

Ottawa, Ont., October 10th.

Mr. John R. Booth, Ottawa's multimillionaire lumberman and paper manufacturer, is still in a serious condition at his residence in the Capital as the result of the injuries he sustained on the 3rd while superintending the removal of timbers fom his timber mill, burned down some weeks previous. Mr. Booth sustained a broken left leg, strained shoulder and lacerated face as the result of being struck by a falling plank and although he is doing well, his advanced age of 87 years makes the accident a serious matter for him.

Mr. Booth, as is well known, has year in and year out risen early and repaired every morning to his plant to superintend actual operations in process there, leaving office matters mainly to his sons. He had followed his usual custom on the morning of the 3rd and was directing a gang of men tearing down the ruins of the mill when a twenty-five foot crossbeam fell on him, breaking his leg and badly shaking him up. He was carried to an ambulance where a great crowd of his employes, with whom the veteran lumberman enjoys an unusual popularity, had gathered. Raising himself on his stretcher he shook his head and said, "Well boys, this is the last time I expect to see you," which words were greeted by a chorus of "No." The news of his accident was received with great regret throughout the city of which there is no citizen more well known than Mr. Booth.

The demand for Canadian bushmen this year, according to statements made by local lumbermen, is quite large but the supply is even greater and as a consequence the wages being paid in the woods this year are not so high as last. From $26 to $30 per month is now the range whereas last year it was from $30 to $35. A great percentage of the men who are going to the woods are Poles and other foreigners. This class of people do not rank with the French Canadians in lumbering when they commence the work, but become, after one or two years in the woods, quite accustomed to it and will eventually take the place of Canadians.

The news that through a remarkable scientific discovery made by chemists at Queen's University, Kingston, it has been found that the dark colored liquor, considered until recently as a waste product in the manufacture of sulphite wood pulp, is infinitely better for use as a dressing or dust layer on roads than the low grade oils now used, has been hailed with great interest locally. One reason for this is that the E. B. Eddy Company of Hull has been making experiments along this line, so far with very gratifying results it is understood. "We are not yet prepared to make any definite statement concerning the success of these experiments," said Mr. W. H. Rowley, general manager of the Company. "Our chemists have been experimenting with the liquor which we formerly regarded as useless but we have nothing to announce yet for publication." Roads have been treated with oil and the sulphite liquor under identical conditions, it is said, and it has been found that the same quantity of concentrated waste liquor will last longer than road oil when subject to the washing of rain and has the additional advantage of being free from the nauseating odor so objectionable in low grade oils.

Judgment is awaited in two cases concerning paper companies which were heard in the Hull Superior Court a week ago. In one the James McaLaren Company of Buckingham sued the Estate of the late Charles Logue for $4,700, damages claimed for valuable timber and limits belonging to the MacLaren Company in Hincks and Blake townships, Que., which it is alleged the defendants cut.

In the other case Miss Marie Ange Girouard of Hull sued the E. B. Eddy Company for $5,000 damages. The action was taken under the Workmen's Compensation Act and arose out of an accident which Miss Girouard sustained in June 1912, when her right hand was cut off through coming in contact with some paper cutting knives in the Eddy Paper Mill.

Some of the local lumber and pulp and paper people are claiming that this has been a hoodoo year for them in many ways. In the first place the uncertainty in regard to the American tariff temporarily paralyzed the export trade to that country, resulting in a very slow summer's business. Forest fires disposed of a considerable quantity of valuable timber and pulpwood owned by Ottawa firms an then came several local fires which destroyed the plant and timber of others, the J. R. Booth Company having two fires within a week's time. Still later Mr. J. R. Booth, probably the best known Canadian lumberman and paper manufacturer was struck down by a falling timber. For a considerable period, too, the Manchester ship canal and other British labor troubles made it almost impossible to secure space on boats to England. With the final settlement of the tariff question, however, matters are expected to improve.

Chairman H. L. Drayton of the Railway Commission. returned some weeks ago from England where his mission was to treat with the British Government in regard to the joint control of ocean freight rates. So far his report has not been made public though press reports forecast it as indicating that his mission was unsuccessful. To your correspondents, however, the chairman made certain statements which would not seem to indicate that this was so, and was not loth to emphasize the extreme importance of regulating ocean as well as land rates since under existing conditions a reduction made in the land part of a through rate could be nullified by a corresponding increase in the water tariff.

There is considerable difference of opinion in Ottawa owing to a recent Washington report that Canada would not immediately obtain the full benefit of the new United States tariff because the treaty between that country and Britain providing for equal treatment of vessels did not include Canada and the other overseas dominions. Hon. George E. Foster, minister of Trade and Commerce, when seen in regard to the matter replied that he was not prepared to make a statement as yet. Exports from the Dominion to the United States go mostly by rail but there is a considerable amount of lumber, pulp and paper which goes across the Great Lakes and some on the Atlantic. The Washington report said that the new tariff law provided a reduction of five per cent, under the regular tariff schedules for all goods brought in the United States ships and the same reduction on goods brought in foreign ships from countries that have treaties with the United States guaranteeing equal treatment of vessels with regard to import duties.

Canadian shippers are now paying 3 cents per 100 pounds for cartage to and from railway stations instead of 2½ cents as formerly. The increased tariff of the railway companies, which was recently authorised by the Railway Commission, went into effect on October 1. It is nominally only good until January 1 but as a matter of fact there is little doubt that the railways will carry on cartage indefinitely at these figures. Their threatened abolition of cartage facilities to take effect on October 1 has in reality more or less of moral suasion and it had its effect in the shipper's giving in to their demand for the increase of half a cent per hundred pounds, which was the goal to which the transportation interests were heading. Ottawa manufacturers are feeling more or less "sore" since when the matter of a proposed increase in cartage rates first came before the Railaay Commission almost a year ago, the railways only asked for 3 cents per 100 pounds in the large cities whereas in Ottawa and Hamilton they were willing to accept 2½ cents. Consequently Ottawa did not oppose then the increase. As a result of the opposition which was put up, however, this city is now paying its 3 cents per 100 pounds as well as the larger centres.—"MAC."

U.S. IMPORTS.

Special to Pulp and Paper Magazine.

October 11th, 1913.

Consular advices just received state that the United States took most of the forest products shipped from Quebec, the shipments last year amounting to $4,817,594. The exports to England were valued at $2,749,080, the remainder worth $12,000, and consisting of birch, elm and pine, going to France. The pulp shipped to England in 1912 was valued at $478,946, against $276,572 in 1911. France, which had bought some pulp in 1911, ceased to buy this product here in 1912. The exports of pulp to the United States in 1912 were valued at $1,807,359, against $1,273,868 in 1911.

Ever since pulp wood became an article of export from this province, the exports from this port have gone entirely to the United States. In fact, the American demand for pulp wood since the beginning of this century, and later for wood pulp and news print, first gave value to the immense spruce and balsam forests of this province, for after the timber had been taken from private lands and crown limits, where ever accessible, many limits were considered of little or no value. The days of building wooden ships had passed and a period of depression, if not stagnation, had come over this province. Then came the American demand for pulp wood, pulp and paper, and the great spruce and balsam forests for the first time became valuable.

BRITISH COLUMBIA SLASH BURNING.

About 15,000 acres were burned by loggers and timber owners this Spring and in no case did the fire from slash escape or do damage to the surrounding timber. After the slash burning season was over officers of the Forest Branch visited a number of the loggers, who had already had burning operations, in order to get their ideas on the cost of slash burning and its advisability as a fire protective measure in no case did a logger who had burned slash regard the cost as an argument against slash burning, nearly all who had had experience in slash burning said that the cost was negligible or as some of them put it "only the price of a match." Without exception all timber owners who have had experience with the slash burning regard it as a necessary fire protective measure. There is no doubt but that the campaign carried on this Spring on the coast has had a great deal of effect in popularizing slash burning.

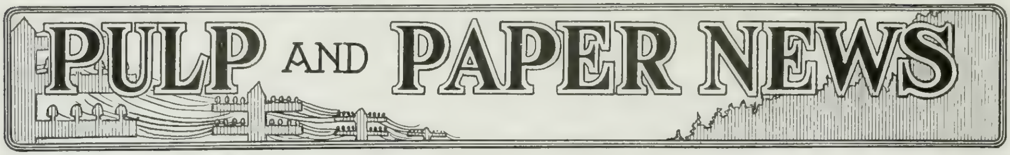
The chief argument which now exists against slash burning is that there is danger of burning logs and machinery Quite a number of loggers, however, have demonstrated that by planning the work sometime ahead an occasion maybe provided for slash burning when there are no logs in the woods.

DRYDEN TIMBER AND POWER COMPANY AFFAIRS

George Kappele, of Toronto, official referee and the solicitor for the permanent liquidator, D. L. Mather, have issued a judicial notice to the creditors of the Dryden Timber and Power Company, Limited, of Dryden, Ontario, that, pursuant to the winding up order made recently by the Supreme Court of Ontario, the creditors must on or before October 30, send to D. L. Mather their full names and addresses, together with full particulars of their claims and the nature and amount of securities, if any, held by them and the specified value of such securities, or in default they will be peremptorily excluded from the benefits of the act and winding up order.

MONTREAL'S NEW PAPER CREATING MUCH TALK.

The organization of Montreal's new morning paper has already created a stir. Under the management of Mr. M. E. Nichols, formerly of the Winnipeg Telegram, and Mr. Brenton A. MacNab, late managing editor of the Montreal Star, the work of preparing the way for the new one-cent morning paper has been conducted in an effective, businesslike manner. The result is that at the present time one of the most up-to-date printing plants in the Dominion of Canada is located at No. 8 Beaver Hall Hill, the conveniently situated home of the Montreal Daily Mail.



PULP AND PAPER NEWS

Laurentide Company, Ltd., is planning the installation of additional paper machines.

British Columbia has removed all restrictions upon the exportation of its pulp wood.

The Noble Manufacturing Co., which has recently begun the manufacture of biscuits and chocolates in St. Thomas.

The Toronto Paper Manufacturing Co., at Cornwall, Ont., have doubled the capacity of their sulphite plant, and will be operating in two or three weeks.

The paper mill will now turn out ledger and high grade loft dried papers. Assistants will arrive from Worcester in a few weeks.

They have also added an elaborate bleaching plant and will bleach their entire output, instead of bleaching in the paper mill as formerly.

Approximately 3,500 carloads of paper passed of all kinds into and through the city of Winnipeg during the year 1912 for use in Western Canada.

The Belgo-Canadian Company, at Shawinigan Falls, Quebec, is installing a sulphite plant to be followed in 1914 by one paper machine and by a second paper machine in 1915.

E. W. Backus, head of the Minnesota and Ontario Power Company, at International Falls, has been studying the possibilities of Kenora, Ontario, for news print paper-making purposes.

The Dominion Pulp Co., Ltd., of Newcastle, N.B., has made application to the Dominion Government for permission to extend their wharf on the north side of the Miramichi River.

The Donnaconna Paper Co., of Donnaconna, Que., has ordered electric motors ranging from 150 H.P. downwards and aggregating 1330 H.P. from the Canadian General Electric Co., Limited.

Fraser and Co., Ltd., lumber operators in the St. John River are talking of building a pulp and paper mill at Edmundston, on the river St. John. Nothing definite, however, has been decided as yet.

The Grand Trunk Railway propose to establish a Forest Branch similar to that of the Canadian Pacific. Their chief work will be obtaining a better supply of ties and taking up matters of wood preservation.

The Abitibi Pulp and Paper Co. has placed with the Canadian General Electric Co., Limited an order for electric motors ranging from 400 H.P. downwards and aggregating 2165 H.P. for their new mills at Iroquois Falls, Ont.

The Jerome K. Remick Co., of New York City, who are well known music publishers, are opening out business in Toronto and have taken a five and a half year lease of 117 and 119 Yonge street at a rental of $8,000 a year.

The Schroeder Mills & Timber Company, of Wisconsin, have been granted an Ontario license to manufacture, buy, sell, import, export and deal in timber and lumber; To deal in, and erect saw mills, pulp and paper mills, chemical plants and lumber yards.

Robert Davies, President of the Don Valley Paper Co., and a widely known man, was stricken very suddenly with paralysis last week. Mr. Davies is sixty-four years old and for a time his condition was serious. He is now reported to have a good chance for recovry.

Wayagamack will soon be quoted in the regular Stock Exchange list, as soon as the application papers are passed upon by the Montreal Stock Exchange committee. The company's plant at Three Rivers is working at capacity, while the lumber is reported to be flourishing.

Mr. Dubuc, of the Chicoutimi Pulp Co., has sent to England a pretty souvenir volume for presentation to each of the subscribers who came to the aid of those who were in distress during the period when the great fire broke out last year in Chicoutimi and destroyed a good part of the town.

The total marketed production of talc for 1912 was 133,289 short tons, valued at $1,097,483, a decided increase compared with the production of 1911; the output of soapstone in 1912 was 25,981 short tons, valued at $609,480, a gain both in quantity and in value compared with the production in 1911.

I. H. Weldon, of Toronto, President of the St. Lawrence Paper Mill, Limited, has returned from an extended business trip to Winnipeg, Calgary and Edmonton, where he visited the different houses handling the lines of the company. He reports that trade is improving and the outlook for business, owing to a bumper crop is promising.

The official announcement by President Watson of the Spanish River company confirms the forecast that the financial requirements of the company would be provided for by an issue of short term securities. If these notes are a six per cent. issue a price of 95 will be considered satisfactory at the time and under the circumstances.

Although no statement has yet been made on the point, it is presumed, as stated a short time ago, then the deferring of the preferred stock dividend is part of the arrangements made with the underwriters of the short term notes. Earnings that would be diverted to dividends could thus be reserved for the retirement of the notes and the new financing would entail no increase in fixed liabilities.

Ottawa and Hull Power and Manufacturing Co. have decided to increase their power plant by the addition of two water wheel-type alternators each 6750 K.V.A., 120 R.P.M., 2300 volts and also two transformers each 6750 K.V.A., 2300-12000 volts. The contract for this addition has been awarded to the Canadian General Electric Co., Limited.

It is announced that the Dominion Government is expropriating land for the construction of a new canal at Sault Ste. Marie, which will be of the same depth as the new Welland ship canal—from thirty to thirty five feet. This will in time provide a waterway for the largest vessels from the head of the Great Lakes to the Atlantic seaboard

Ontario has installed a well equipped box factory for turning out all its boxes both plain and fancy. This portion of the plant is also producing shoe cartons at the rate of three thousand a day for local footwear firms. The superintendent of the box factory is J. J. Bradley, who formerly held a similar position with the Stearns Folding Box Manufacturing Co., in Detroit.

The report of the Fifteenth Convention of the Canadian Forestry Association, held in Winnipeg on July 7, 8, 9, 1913 is just being issued. The meeting, which was attended by men of note fron all parts of the country, was of peculiar interest to the central west on account of the attention which was given by the speakers at the meeting, to matters of great import to the citizens of the Prairie Provinces.

A. G. Campion, sales manager of the Belgo Canadian Pulp and Paper Co., Shawbridge Falls, Quebec, was in Toronto last week calling upon the trade. He has recovered from a long illness of seven months, and his many friends were pleased to meet him. Although he has lost many pounds in weight Mr. Campion is feeling well and is glad to resume business.

The time for receiving tenders for the right to obtain licenses to cut the red and white pine timber in the townships of Thistle and McWilliams in the District of Nipissing expires on October 30, and it is understood that a large number of bids will be put in as many applications have been made to Hon. W. H. Hearst. Ontario Minister of Lands, Forest and Mines, for maps and conditions of sales.

R. W. Breadner, who was formerly tariff expert for the Canadian Manufacturers Association and had his headquarters in Toronto, before he was appointed Chief Appraiser of the Customs Department, at Ottawa, has been made chief advsier to Hon. W. T. White, Minister of Finance, in all tariff matters and will advise concerning any change that it may be proposed to make in the existing tariffs of the Dominion.

The new paper machine of the Beaver Companies at Thorold, Ont., is being built at Sandy Hill Iron and Brass Works, Hudson Falls, N.Y. It will be one of the largest board machines in existence, having a capacity of 60 tons per day. It is to be a very finely finished machine since the Beaver Companies propose to make their plant as attractive as possible to visitors. The machine is to be most modern in every particular.

Woodpulp manufactured in Sweden from wood grown in Russia is not entitled to free entry into the United States, according to a decision by Assistant Secretary of the Treasury Hamlin. This is in keeping with the Treasury Department's policy in denying favored nation treatment to Russia in connection with wood pulp and paper because of the abrogation of the treaty of commerce between the United States and Russia.

A new power company has been chartered known as the Upper St. Lawrence Power Co., Limited, with head offices in Toronto and a share capital of three million dollars. The company is empowered to acquire and develop water powers generally and to amalgamate with or acquire the business of any other power company. The names of the real incorporators are not disclosed but the project is generally believed to be one of the enterprises of Mackenzie and Mann.

The Reg. N. Boxer Co., Limited, whose head offices are in Toronto and whose well equipped factory is located in New Toronto, have opened a warehouse in Montreal at 8 St. Helen street and executive offices in the new Mappin building on St. Catherine street. The business of the company in Montreal and Quebec has so far this year doubled that of last year and the capacity of the company's factory in the production of wall paper was recently enlarged to take care of the rapidly expanding foreign and domestic trade.

The Canadian Collieries (Dunsmuir) have decided to install an extensive electric driven pumping plant. There will be four separate units. Two will be driven by 75 H.P. A. C. motors and a third by a 75 D. C. motor, each unit being capable of delivering 350 gallons per minute against a head of 370 feet. The fourth unit consisting of two pumps working in series will deliver 350 gallons per minute against a head of 740 feet. The pumps will be built by Canadian Allis-Chalmers, Limited and the motors by Canadian General Electric Co., Limited.

The Simpson Folding Case and Trunk Co., with head offices in London, Ontario, has been granted a provincial charter. The capital of the company is $40,000 and the provincial directors are Hector E. Simpson of Niagara Falls, Charles E. Speiran, William J. Bigelow, Francis J. Hutchins all of London and Joseph W. Simpson of Sarnia Among the powers of the company, in addition to manufacturing and dealing in all kinds of travelling goods, is to manufacture, buy, deal in and sell all kinds of fibre, wood fibre and fibre board.

Good progress is being made on the new sulphite plant of the Belgo Canadian Co. at Shawinigan Falls. It is expected that the buildings will be roofed in by the end of the year, and the capacity of unbleached sulphite will be about sixty tons per day. The company are also planning to add a fourth machine to their news plant, which will be put in operation about the same time that the sulphite mill starts, which will be about June next. H. Biermans, President of the Company, is still in Europe and will not return to Canada until the middle of next month.

The town of Port Weller, which is the official name for the Lake Ontario entrance to the Welland Canal, being called after J. L. Weller, the planner and builder of the new canal, is expected to be a most important point in a few years. Thorold also expects to have a big boom by reason of the canal operations and already land values have taken a decided jump. The citizens of the town feel that it will become one of the most important pulp and paper centres in Ontario having already five pulp mills, two paper mills and a beaver board mill as well as other leading industries.

John Martin of the John Martin Paper Co., Winnipeg, was in Toronto and Montreal last week on business. It is only three years since the company of Mr. Martin was formed and during that time branches have been opened in Calgary and Edmonton, the latter being established only a short time ago. Mr. Martin recently entertained thirty-six members of the Printers Board of Trade to a dinner in Edmonton, after which a visit was paid to the warehouse of the company. He reports business conditions in the West as improving rapidly and an increasing demand for all kinds of paper.

At a meeting held recently of representatives of the different municipalities in Ontario using Hydro power it was decided to ask the federal government to put all water powers under the jurisdiction of the Hydro-Electric Conmission of Ontario . Philip Pocock, Chairman of the London Hydro-Electric Commission, emphasized the comprehensive scheme outlined by the Dominion Government for the creation and improving of waterways in connection with the St. Lawrence river, Welland canal, French river, Sault Ste. Marie, the Trent river, Ottawa river, and others involving a large expenditure of public money.

Canadian Markets

The market situation presents few changes from last report and news print continues to be in fair demand. A prominent paper manufacturer stated last week that there was an over production of about ten per cent. owing to the increased tonnage that had come on the market in Canada during the past few months so far as the foreign demand was concerned but, he added that, within six months, conditions would right themselves and consumption catch up with the supply. Prices remain unchanged. A representative of the International Paper Co. is reported to have said recently that Canadian concerns were capitalized at too high a figure, that they would find that depreciation and exhaustion charges would need to be larger than they anticipate and that, after adding the cost of transportation and storage, Canadian companies would hardly be in a position to undersell those of the United States even with news print on the free list. The same official added that he looked for higher rather than lower prices. Replying to this observation a leading news print sales manager in Canada states that if Canadian companies have been able to command a fair share of the American news print business, even before the free admission of paper made from wood off free lands went into effect he had little fear that they would continue to command a much larger share of the trade now that the duty is wholly removed. As to the assertion that Canadian companies were overcapitalized he said that such was not the case and that increasing requisitions for news print would soon consume all the additional tonnage coming on the market, because several news plants on the other side of the line, finding their sources of raw material being rapidly, if not already, depleted, were making runs on other kinds of paper or would have to remove their mills to Canada.

Book and writing mills are only fairly well employed, but this is to be expected considering that the tonnage which has come on the scene since last spring, has been increased about twenty-five per cent. and, in a few months, it is believed that the growing demand will take care of the augmented output. The sales for ground wood have picked up considerably during the past few weeks and sulphite, both bleached and unbleached, is fairly active. Of course, business in no line is as good as last year but the fall trade is soon expected to pick up materially. The jobbing houses report that the demand for wrappings is on the verge of a very gratifying increase. The rag and paper stock market is quiet and the only activity is in mixed papers which keep up at a fair price. The principal cutting is in paper bags and on kraft and some jobbers assert that the mills are responsible for the sacrificing of the latter.

Quotations, f.o.b. Toronto are:

Paper.

News (rolls) $42 to $45, delivered.
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $3.75 to $4.50.
Book paper (ton lots) No. 3, 4c. to 4.50.
Book paper (carload) No. 2, 4.25c.
Book paper (ton lots) No. 2, 4.50c to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75.
Manila B., $2.50 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.35 to $3.75.
Kraft, 3.75 to 4.75

Pulp.

Ground wood (at mill), $16 to $17
Ground wood, $22 to $25, delivered in United States.
Sulphite (unbleached), $43 to $45, delivered in Canada.
Sulphite (unbleached), $43 to $45, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $58 to $62, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft white shavings, $1.80.
No. 1 Mixed shavings, 60c.
White blanks, 97c. to $1.00.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 80c. to 85c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.15 to $1.20.
No. 1 print manilas, 65c.
Folded news, 50c.
Over issues, 52½c.
No. 1 clean mixed paper, 42c. to 45c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.35.
No. 1 white shirt cuttings, $5¾ to $6.
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.75.
Black linings, $1.75.
News light flannelettes, $4.80.
Ordinary satinets, 75c.
Flock, 90c,
Tailor rags, 65c. to 67½c.

Quotation f.o.b. Montreal, are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.

Book papers, carloads lot, No. 3, 4⅛c. to 4½c
Book papers, broken lots, No. 3, 4¼c. to 4¾c.
Carload lots, No. 2, 4¾c.
Manila B., 3¼c. to 3½c.
Broken lots, No. 2, 5c. to 5½c.
Carload lots, No. 1, 5¼c. to 6¼c.
Broken lots, No. 1, 6¼c. to 6¾c.

Pulp.

Sulphite Easy Bleaching, f.o.b. Montreal, $44 to $45 per ton.
News quality, f.o.b. Montreal, $42 to $43 per ton.
Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4.00 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $16.00 f.o.b. Montreal.
Ground Wood, No. 2, $22 to $24, delivered United States.

Wrappings.

Fibre, 4c. to 4¼c.
No. 2 manila, 3¾c. to 4c.
No. 1 manila, 3½c. to 4½c.
Kraft, 4c. to 4¾c.

New York Markets

(Special to Pulp and Paper Magazine.)

New York, October 11th, 1913.

Though the new Underwood-Simmons tariff has been in force now for just one week, no appreciable change has yet been noted in the chemical pulp situation. Business in all lines in this market continues to reflect a very quiet tone, and prices are inclined to be weak. Numerous offerings are coming in daily from abroad, but consumers in this country are still conservative in their contract making. It is the common belief, however, that the next couple of weeks will witness a revival, as stocks in most quarters are rather low. According to advices already received from abroad, chemical pulp makers are shortly to figure on reduced prices, which will naturally be very pleasing to the paper mills in this country, but the sulphite mills are not so keen over the outlook which will eventually mean that they will not receive such lucrative prices for theur products as heretofore. So far no changes have been reported in prices, and quotations continue to be made on a basis herewith given.

Though the mechanical pulp mills throughout the country have been greatly benefitted during the interval by better water conditions, the situation in this market is virtually the same as previously reported. A good stiff demand continues to prevail for ground wood pulp, and prices are being firmly adhered to by the makers. Consumers are drawing steadily on their contracts and numerous inquiries are being made for additional supplies. Mills making their own pulp are operating their machines on a fair percentage basis, but as yet they have been unable to turn out sufficient quantities to meet their requirements.

Old waste papers of all descriptions are reflecting a very strong demand, and prices continue to be made on a high and firm basis. The activity of the board mills is keeping the lower grades in active inquiry, and as collections are expected to prevail in these lines in the very near future. The demand for Book stocks in particular has greatly increased during the past week, and sales are being made on a basis of 85c. to $1.05, with 75c. to 80c. being asked for No. 1 Crumpled Stock. While prices on both Hard and Soft White Shavings are unchanged, consumers appear more willing to accept the present offerings than they have for some time past.

Pulp.

Ground Wood, No. 1, $19 to $23 per ton, f.o.b. mill.
Ground Wood, No. 2, $17 to $19 per ton, f.o.b. mill
Unbleached Sulphite, domestic, 2c. to 2¼c. per pound, delivered.
Unbleached Sulphite, foreign, ex duty, 1.90c. to 2¼c. per pound, en dock, N.Y.
Bleached Sulphite, domestic, 2.90c. to 3c. per pound, delivered.
Bleached Sulphite, foreign, ex duty, 2.70c. to 2.95c. per pound, en dock, N.Y.
Easy Bleaching Sulphite, foreign, ex duty, 2.15c. to 2.25c. per pound, en dock, N.Y.
Unbleached Sulphate, foreign, ex duty, 1.90c. to 2.10c. per pound, en dock, N.Y.
Bleached Sulphate, foreign, ex duty, 2c. to 2.80c. per pound, en dock, N.Y.
Kraft Pulp, foreign, ex duty, 2c. to 2.10c. per pound, en dock, N.Y.
Soda Pulp, domestic, 2.15c. to 2.25c. per pound, delivered

Paper.

General business in the local paper market has shown more snap during the past ten days than it has for some time past. A good part of the activity was caused by the placing of delayed orders with local distributors incident to the passing of the new tariff act. Trading, however, has not yet asumed the rush that was anticipated following the signing of the measure. This may be attributed, though to the fact that the past week has been virtually one grand holiday owing to the playing of the Post Series Baseball games here and in Philadelphia. Business that would ordinarily come forth after the first of October, and especially following the enactment of the new tariff, has subsequently been delayed a week. The month started off well, generally speaking, and paper men feel that the fall demand is now well under way. All lines appear to be in motion, and everything looks promising for steady and increasing gains in the volume of sales. The trade seems most concerned at present in what the prospects are for getting reasonably prompt deliveries from the mills. Though the water situation throughout the country is gradually inproving, it is still a troublesome feature and many manufacturer sare not only unable to continue new business but are finding it still pretty difficult to even make part shipments on orders in hand. This condition has produced a scarcity on a few grades of paper, and which is fast spreading to some of the others, particularly the strictly wood papers. Many of the local jobbers who have light stocks on hand are redoubling their efforts to get deliveries from the mills, which is naturally reflecting a much stronger price situation. The downward drift in newsprint prices is causing serious consideration among the Americans manufacturers, and now that foreign makers can ship their product into this country free of duty, profits of the domestic article will in all probability be greatly reduced for the year 1914. While the principal local manufacturers refuse to discuss the matter, it is a known fact that contracts have been made during the past month below 2c. per pound the first time in five or six years. The decline is due in part to the prospects of free newsprint and also by the overproduction in Canada, which of late has caused extreme competition to prevail. Former quotations in all lines are virtually the same, and are repeated herewith.

News, rolls, transient business, $1.00 to $2.10 f.o.b. mill.
News, rolls, contract renewals, $1.95 to $2.05 f.o.b. mill.
News, sheet, $2.10 to $2.15 f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20 f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90 f.o.b. mill.
Writing paper, superfine, 11c. to 13c., del. east of Miss. Riv.
Writing paper, extra fine, 10½c., del. east of the Miss River.

Writing paper, No. 1, fine,	9c., del. east of the Miss. River.
Writing paper, No. 2, fine,	8c., del. east of the Miss. River.
Writing paper, engine sized,	4½c. to 8c., del. east of Miss. R.
Bond paper,	6c. to 24c., delivered east of Mississippi River.
Ledger paper,	8c. to. 30c., delivered east of Mississippi River
Linen paper,	7c. to 18c., delivered east of Mississippi River.
Manila jute,	4¾c. to 5¼c., delivered.
Manila wood,	$2 40 to $3 00 delivered.
Kraft, No. 1,	$3.65 to $4.00, f.o.b., mill.
Kraft ,No. 2,	$3.25 to $3.50, f.o.b., mill.
Screenings,	1¾c. to 2⅛c., delivered.
Boxboards, news,	$30 to $33 per ton, delivered.
Boxboards, chip,	$28 to $31 per ton, delivered.
Boxboards, straw,	$29 to $31 per ton, delivered.
Wood pulp board,	$42.50 to $45 per ton, delivered.
Tissue, white, cylinder,	45c. to 47½c. delivered.
Tissue, fourdrinier,	47½c. to 52½c. delivered.
Tissue, jute manila,	52½c. to 55c., delivered.

British Markets

(Special to the Pulp and Paper Magazine.)

London, October 5th, 1913.

Owing to labor unrest the British paper market for the past two weeks has been adversely affected. Some mills are working on short time and, to add to the difficulties, there has been a serious dock strike in Manchester, whilst about 40 publishing houses are unable to get along with the business satisfactorily owing to a strike amongst the bookbinders, which naturally curtails the demand for paper. All these disturbing elements have a material set-back to the paper manufacturers who turn out fine printings and other high-class papers. There is now a suggestion that compositors and printers should not work for those firms who will not fall into line with book-binders' union and if this threat is carried out 17 publishing houses will stand idle. However, the Master Printers' Association will probably settle matters in their own quiet way. The demand for news print is good and large quantities have arrived lately from Newfoundland. Stocks in the London houses are reported to be large and agents are more anxious to get new business to help keeping the mills on the move. Some good contracts have been given out to the mills from the government offices and it only requires the financial position on the continent to improve and a cessation of labor unrest in the United Kingdom to bring another busy period to the British mills, similar to what was experienced a little over two months ago.

* * * *

The question of competition between the British mills for the capture of the most important markets in the United Kingdom has lately caused a good deal of discussion. Some very erratic statements have been put forth by trade journals and manufacturers alike, but it may safely be said that the output of any particular large mill has very little effect on, say, the London market where all grades and classes of papers are consumed. The only thing that British manufacturers need have any fear of is the importation of cheap, rubbishy European paper which mostly springs from Scandinavia and a fair supply from Germany. Canadian and Newfoundland news print always finds a demand in the United Kingdom, provided the prices and discounts are made suitable, and, of course, there is at all times a good request for fine writings, printings, and other high-class papers. Just now the paper trade in Scandinavia is reported to be depressed and German papermakers are finding things difficult in the way of reaping anything equal to a decent profit.

The demand for sulphite and sulphate is improving and English paper makers are making enquiries for next years' requirements. Prices are slightly easier at the time of writing and continental and Scandinavian stocks are plentiful. All sorts of rumors are current as to what the Scandinavians have, but it nay be taken for granted. though logs are dearer, ample provision has been made for the increasing demand for this and next year. To substantiate this statement, it was reported recently that stocks were low and the next week we were informed that record shipments had been made from existing stocks in Sweden and Norway to America. Increased shipments of prompt parcels have also reached British ports lately. Prices are about as follows:

Sulphite, Bleached	$52.80	to	$57.60
Sulphite (No. 1), Easy Bleached	47.00	to	50.00
Sulphite, News quality	38.90	to	39.00
Soda, Unbleached (No. 1)	38.90	to	39.10
Soda, Unbleached (strong)	38.20	to	39.89
Soda Kraft	38 40	to	40 00

There is not very much doing in the ground wood market. Large consignments are arriving from Canada and Newfoundland and Scandinavia, owing to the good water conditions recently, has large stocks. Everything is in the buyers' favor, but still business is dull, owing no doubt to good supplies mills have in England. Prices are about as follows:

Pine, 50%, moist prompt	$9.40	to	$10
Pine, dry, prompt	$23.00	to	$26

Add a dollar extra for forward delivery; all prices c.i.f. London, Manchester, etc.

* * * *

The French market, according to one of the Paris agents, is dull for chemical pulps and prices are firm. Ground wood quotations are nominal and the large stocks on hand are affecting prices, particularly for wet pulp.

* * *

The chemical markets are fairly active and prices are unchanged. Sulphur is scarce and will probably be dearer. Other raw matrials for paper making such as rosin, rags, bagging, etc., are experiencing a slow demand but no change has been made in current quotations.

* * * *

China Clay, owing to the settlement of recent troubles in Cornwall is being delivered in larger quantities, but contracts for next year are entered into on higher quotations when compared with this year. High freights and excessive railway rates are the two chief causes of the advance. Esparto is coming forward very well and there is more enquiry for distant contracts, but sellers show some reserve in quoting even at higher figures.

Dredging has commenced on No. 1 section of the Welland ship canal by the Dominion Dredging Company, about two thousand feet out from the shore at Port Weller, excavating for the new harbor. Quintan and Robertson, sub-contractors for O'Brien and Doughney on section 3, at Thorold, have already one steam shovel at work and another is being fitted up to begin operatons. The Niagara, St. Catharines and Toronto railway are rushing work on the track laying along that portion of the work on No. 1 section A deputation from Niagara Falls last week waited upon Hon. J. D. Reid, acting Minister of Railways and Canals at Ottawa, and urged a change in the plans of the new Welland Canal so as to bring Niagara Falls within a mile and half of the deep water navigation to Lake Ontario via the new waterway. They asked that the proposed

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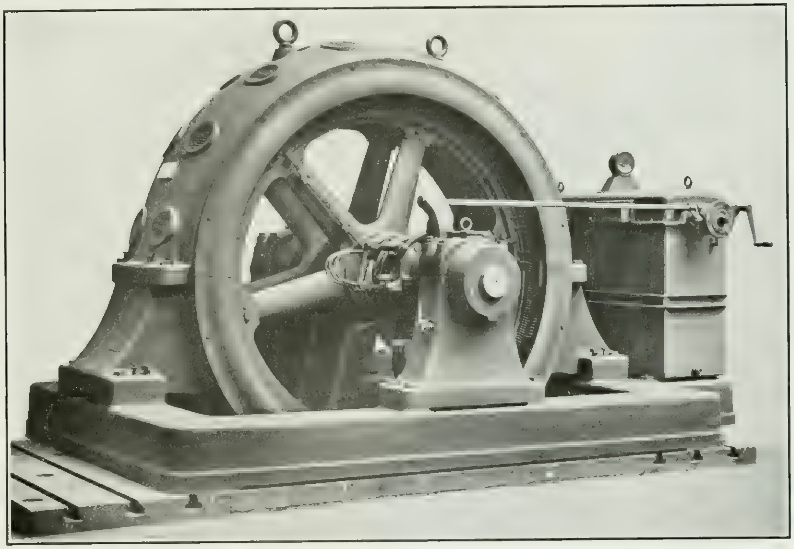

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dam across the Welland river, which according to present plans is to be built at Port Robinson, be built instead at Lyons Creek, seven miles up the river. This would give a connecting thirty foot waterway from that point through to the mouth of the canal on Lake Ontario. It would also give a much larger area for wharves and industrial sites. It was represented that a change in plans was quite feasible from an engineering point of view, while the additional cost was estimated at only $50,000. The matter will be taken up by Hon. Frank Cochrane on his return to Ottawa this week.

J. A. Osborne, who is proprietor of the Fort Frances Times and one of the most aggressive citizens of that enterprizing town, was in Toronto last week interviewing Canadian Northern railway officials with a view of securing a new hotel for Fort Frances. He reports that the power plans are well under way and that 35,000 horse power is already under development. Mr. Osborne states that the new 125 ton news print mill of the Ontario and Minnesota Power Co. will be in operation at the beginning of the new year. The town now has a population of 4,000, an increase of nearly fifty per cent. in the last year.

SIR THOMAS BOWATER, NEW LORD MAYOR OF LONDON.

Sir Thomas Vansittart Bowater, who was today elected Lord Mayor of the City of London and will assume office on November 9, is the first Lancastrian to attain to that high position.

Sir Thomas Bowater is a Manchester man. He was born in 1862 and came to London as a young man to enter business. He is now at the head of a large firm of papermakers agents and merchants.

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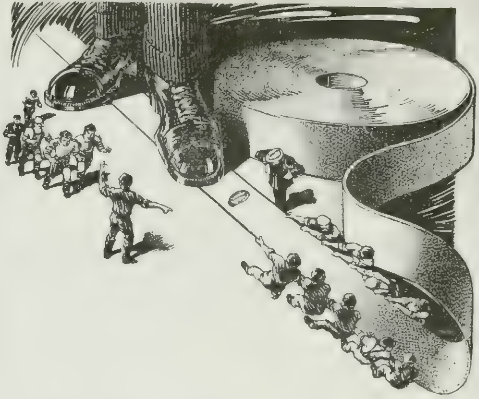

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BRITISH COLUMBIA FORESTRY NOTES.

It is purposed to increase the rate of royalty as it is believed that the timber now being logged is worth more to the public than the 50c. royalty now collected.

Many different systems of increasing royalty were brought forward by the lumber,men among them being the grading of the timber and the increase of the rate on the high grades and the collection of the royalty as a percentage of the value of the timber sold. At these meetings opportunity was taken to discuss with the lumbermen the fire protection work of the Forest Branch and arrangements were made to have the timber owners of the Province appoint advisory committees who would work with the Forest Branch in improving and supervising the fire protective work.

The past fire season has been most successful. The Forest Branch has had at work 415 men in addition to 60 men who are employed by the railroads under the supervision of the Forest Branch. The expenditure for patrol has been over $200,000, the highest expenses per month being about $50,000. Arrangements were made for the employment of 100 extra men through the fire season, but owing to the weather it was not necessary to call out this emergency force. 37 boats were used by the Forest Branch in fire protection this summer.

A complete system of trails and lookout points connected with telephone is being completed in the irrigation districts around the Okanagan Lake, this system will be perfected this fall and should prevent any further fires in the important watersheds in this region.

Arrangements have recently been made whereby the Forest Branch undertakes the inspection of lands before they are open for settlement in order that timbered and non-agricultuil lands may be kept in reserve for forest purposes. About a dozen or 15 parties are now in the field engaged at this work. All lapsed timber licenses and leases are examined by the Forest Branch before action is taken towards their disposition, and all areas on which there is merchantable timber or which are unfit for agriculture are reserved for forest purposes. Field examinations have recently been made of the watershed of Seymour and Capilano Creeks north of Vancouver, from which Vancouvre and surrounding municipalities derive their water, and recommendations have been made that the forested watersheds of these creeks be set apart as forest reserve.

The Forest Branch still continues to receive applications for the purchase of small areas of timber; 8 parties are now in the field cruising timber for sale. During the past two or three months the dulness of the lumber business has interfered with logging on several of the timber sales and has made it advisable to delay the completion of pending timber sales if the timber is to be sold for its possible market value. The largest transaction now pending is the sale of 500 million feet of timber chiefly hemlock, to the B.C. Sulphite and Fibre Company for the manufacture of chemical pulp, the cutting period on this sale will be between twenty and thirty years and the officers of the Forest Branch are finding it difficult to devise a system of revising the stumpage price periodically in order to protect the Government interests and to be fair to the Company. A very careful examination is being made of the tracts to be cut over in order to render possible the framing of regulations which will protect and encourage the reproduction of the forest. This sale when completed, will embody practically all forest regulations and should be of interest in Eastern Canada where sales of pulp timber to companies are frequently taking place.

Dr. H. N. Whitford has recently arrived in Victoria and will co-operate with the Forest Branch in completeing a reconnaissance of the forest reserves of the Province.

J. H. Swaine, Assistant Dominion Entymologist, has in co-operation with the Forest Branch examined the chief lumbering regions of the Province in order to obtain if possible any damage by forest insects. This investigation has resulted in the discovery of serious damage by bark beetles in yellow pine but up to date no other timber of commercial importance has been found to be affected.

All logging operations in British Columbia are carried on under authority from the Forest Branch and in order that forest officers may keep in sufficiently close touch with the work in the different operations, prevent trespass, undue waste and illegal handling of timber. Instructions have recently been issued to have all logging operations inspected at least once in three months and reported to the Chief Forester.

DAMPING PAPER.

In wall-paper printing it is often necessary to damp the paper, and in lithography to damp the press-plates, and the water used must be free from all suspended matter. Should it not be so, it is left to stand for a few hours for the coarser sediment to subside, and then filtered.

The filter takes the form of a vessel with a perforated bottom (a cask will do on a small scale), over which is a piece of sacking covered with about eight inches of fine white quartz sand. Then comes another sheet of coarse cloth, and then eight inches of sand free gravel. A reservoir below the perforated botton collects the filtered water for use. There is no need to wait to accumulate any stock, as the water can be filtered as fast as it can be used for the purpose indicated. The sand and gravel require renewal very seldom, but the two cloths should be removed and washed about once a month. Their main function is to collect most of the dirt and sediment, and so to save cleaning the rest of the filter. If they have been kept clean the sand and gravel will go a very long time, especially as they have to be dug out and loosened to remove the cloths.—Papier Zeitung.

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Starting a Big Mill

WE HAVE witnessed in this country during the last few years the opening of not a few very large pulp and paper mills. Much talk is heard on all sides as each individual case comes up, and becomes the news of the industry, of the various defects, set backs, miscalculations, poor management, weak judgment and all other shortcomings which are faults of human nature, but which become aggravated when expressed in mistakes involving outlays elaborate equipment, or high priced men. It seems remarkable that practically all the large mills which have started up in this way have experienced very similar difficulties. All have been delayed. In no case have the plants matured as they were originally laid down, when the scheme was developed. Now, it is customary, with us to wave the hand and say that these are inevitable mistakes, due to the shortcomings of the human factor, and come in every case. With this point of view, we cannot agree. Careful observation in each individual instance will show that there is somewhere a weak spot, or many weak spots, which should have been foreseen and remedied. Of course, we appreciate that in building up any organization, of large or small magnitude, a great deal of adjustment is necessary before operations assume a normal and efficient basis. But such complete disorganization, or rather lack of organization, as has been the case in one or two of our latest big print mills, is a gross example of all the faults above suggested. These, however, are not the only cases, but are the most recent and most glaring. It is, of course, easy to recite mistakes and show where remedies and economies could have been effected, but when mistakes pile up on each other and nothing assumes a rational or organized basis, there must be some places where remedies might easily be applied. In the first place, one great mistake seems to have been that ground wood, sulphite and paper mills were all completed at the same time and all the troubles of new equipment in each three, piled up together. **The most successful companies in Canada at the present time are those which have built up gradually or by units.** The objection of trying to start a large proposition, which has three distinct mills is that trouble in one effects the operations in the other, while it is still on a poorly organized basis, in such a way that everything combines to produce chaos. The old fashioned plan of hire and fire cannot in these modern days be applied to a manufacturing organization of any magnitude. Men must be selected with greater care, held more responsible for what they are allowed to do, but not held responsible for what they are not given a free hand to accomplish. It is silly for any to say that the fault is entirely with employees, when in opening a mill employing some hundreds of men, practically all positions of any prominennence have changed at least once in less than a year. There is as much need for efficiency in organization and management as in operation. No company can afford to take on high priced men, fire them quickly and take on more and continue a policy such as this in all departments without suffering itself. It is little wonder that the paper made by some of these companies, has such trouble on the market and produces so many protests and claims from the purchaser. In some cases, the muss of getting the mill started can be laid to the charge of the designing and consulting engineer or architect, whose blunders and omissions are usually the first to affect the proposition. The method of giving a man charge of large or small departments, without any check whatever on his progress or efficiency until suddenly some minor matter, it may be, develops and he is fired is the poorest one. It may be before he has had a chance to get operations going along the lines of his ideas, or it may be after he has done a great deal of damage to the organization, and the mill. Helter skelter methods in the executive of large and small corporations is responsible for our difficulties, of which we have seen so much in this country, during recent years, and which have frequently been the subject of the adverse comment of many watching our industry from the outside.

Scientific application of economic principles is essential to everyone from president to broke boy.

THE NEWSPAPER.

THERE has recently been considerable discussion as to the future of the newspaper in its present form. We took occasion editorially to discuss this matter some weeks ago when it was opened by a speaker at the Newspaper Association in London. Again, we have had a visit from Lord Northcliffe, the English editor and newspaper proprietor, and owner of the famous print mills in Newfoundland. In interviews in this country, he annihilated the old-fashioned monthly type of monthly magazine, saying that such papers as his own were giving the reading public all the literary matter it needed. This has promoted considerable discussion among monthly magazines. The "Evening Sun" of New York recently published an interview with the editor of the "Century", Mr. Robert Yard.

> "The magazines have their place, "said Mr. Yard, "in the new period of reconstruction. They will help to build the new world, as they have helped to tear down. A good deal has been said about the passing of 'muckraking.' It was not the magazines that did the 'muckraking'; it was civilization.
>
> "A condition gradually grew up which the people found intolerable. The people felt that something was wrong, but they couldn't get the facts. They demanded knowledge. The magazines gave it to them; they began to act upon it, and the interest passed from that phase. Now the public wants to know what is being done in the process of establishing the new order. And the magazines will supply that demand.
>
> "It is impossible to compare the newspaper and the magazine. They are different animals. They perform different functions. Neither one can take the other's place. Neither one can perform the duties of the other. For a newspaper to think it can usurp the place of the magazine because it prints novels and halftones in its Sunday section is as futile as the claim of certain magazines that because they summarize the week's doings they perform the duties of the newspaper. The functions of a magazine are vastly more numerous and vastly different than printing novels and halftone pictures."

He points out further that it is unfair to compare good newspapers with Sunday supplements, with poor magazines, but when one brings the comparison to the best newspapers and the best magazines, Lord Northcliff's statement will not hold. We are inclined to agree with the editor of the "Century" that there is again a growing need of, and appreciation for, the higher type of monthly magazine discussing the questions of the day on the broader and saner basis which cannot hold, under the rush of getting out a daily paper. Again, it is questionable whether the present rush of newspapers can induce the heavy advertisers to continue or increase their advertising appropriations upon which the daily papers depend. It is claimed that large department stores in New York City spend from 5% to 10% of their actual selling price on daily paper advertising. There is also a strong feeling that more efficient methods of advertising might be adopted. There is at present nothing as good for these people as news papers and the space they use in them, but it is a significant fact that the large department stores are considering the question of a cheaper means of reaching the public. If they ever decide to adopt some different method, it will go hard with newspapers. The present growth, attained by the largest metropolitan dailies, is considered by many abnormal, but it is quite probable that it will not go back although it may not advance to the lengths which have been covered during the last few years. It is certain, however, that the daily paper or its Sunday edition will not take the place of the monthly magazine.

SECTION TWO RULING.

AS REPORTED elsewhere in our news columns, the Assistant Secretary of the Treasury of the United States, Charles S. Hamlin, has handed down a decision instructing customs officials to collect a countervailing duty on all papers entering the United States valued at over 2½c. a lb., which means that Section 2 of the Reciprocity Act passed by the United States Congress on July 26th, 1911, is abrogated. This ruling seems to us to be one which overrides the natural legal reading and seems to be simply made because it was wished to have it so. As expressed in former issues of this Magazine, it seems very funny, that until its repeal, it should not be operative, and there is no reason why a new tariff law should supersede this section of the Reciprocity Bill. As pointed out by our esteemed contemporary "Paper," this section was not an integral part of the Reciprocity Act, but was added for reasons which apparently were well and good to the legislators at that time, and so made immediately operative without waiting for Canada's decision on the Reciprocity Act. When Canada declined to enter into the agreement, the Reciprocity Act was of no effect, but this section being separate and distinct had been operating some time and has been operating ever since. It is not an amendment to the Payne Aldrich Tariff, as some claim, but was put through with the McCall Bill and is entirely separate and distinct. Many people who have more reasonable views on the American side, claim with us that Section 2 is not automatically repealed and we fail to see why the decision should rest as it has stood. Evidently Assistant Secretary Hamlin has not gone into the matter from all points of view and should be able to see that Section 2 is still a statute. The Paper Trade Journal of New York, the oldest journal published in the interests of pulp and paper in the United States, speaking editorially on this matter, said as follows:—

> "Take, for instance, the item of wrapping and print paper, valued at over 2½ cents per pound. Under the new law the former is scheduled to come in from all parts of the world at a duty of 25 per cent., and the latter at a duty of 12 per cent. But how about the reciprocity act which has not been repealed? Section 2 of this act has been operative since July, 1911, and there is nothing in the new tariff act by which it is repealed. The general assumption is that when the terms of two acts conflict, the latter of the two defines the law. But this so-called reciprocity agreement with Canada is somewhat different from an ordinary tariff act. It was supposed to have been granted for a reciprocal consideration, and could only be abrogated by mutual consent or by one of the parties thereto giving notice of withdrawal by formal denunciation. As a matter of fact, the act in its entirety, including Section 2, is still alive and on the statute books, and according to law, should be made operative the moment the Canadian government chose to fulfil its part as set forth in the proposed agreement

This is an absolute statement of the right view of the case, that Section 2 is not repealed, but still remains a statute of the United States. It was enacted for reciprocity considerations and cannot therefore be disturbed by anything except special legislation. The only grounds which are claimed for the ruling abrogating this Section are paragraph 322 of the new Underwood Simmons Law which contains a countervailing provision to the effect that if any country, dependency or province imposes any duty or other charge upon print paper or wood pulp there shall be imposed upon printing paper valued at more than 2½ cents a pound an additional duty equal to the amount of the highest export duty of that country upon the print paper. It is under this countervailing proviso that Assistant Secretary Hamlin has acted.

Under this same law, it has been ruled, all countervailing duties from British Columbia, Quebec, Finland and Portugal will be levied owing to the export restrictions on pulp wood. The matter should not as yet be considered settled.

LARGE OR SMALL BEATING ENGINES.

THE question on which paper makers vary a great deal is the matter of the size of beating engines. The modern tendency of all grades of paper is toward the larger capacities. The enormous development of the news print industry in America especially, but also in other countries, has encouraged this tendency towards the very large engines, even up to 3,000 lbs capacity. This has not only affected that grade of paper, but also reflects on the manufacture of the higher grades. There is everywhere a tendency to get away from the old three, four or five hundred pound beater. Of course, in news mills, the tendency is to eliminate beating entirely and give the pulp simply a mixing. A number of mills now employ only mixing tanks of very large capacity to accomplish this end. Where the ground wood is made properly with this end in view, there is no doubt that the news sheet produced in this manner is highly staisfactory. Whether or not it would be preferable to run up the production on the ground wood mill and give the half stuff twenty or thirty minutes beating, is an open question. Certainly where mills have to depend on the market for their supply of ground wood the mixing tank is unreliable owing to the variation in grades and qualities of the pulps available on the market. Early in the year at the Annual Meeting of the American Paper and Pulp Association in New York City, Mr. John Strange, the well-known Wisconsin paper maker, stated that his belief was that the beating engines in all paper mills at the present time were too large. This is a point of view with which many will not agree and, since it is such an open question, we carry herewith an elaborate article on "The Comparison between large and small Beating Engines" by Arnold Rehn, a prominent German mill engineer. In news mills, it seems to us that a limit of 2,000 lbs. capacity is the best for economic production, unless a system just being introduced into this country of using double beaters, that is, the use of a steel roll on one side and lava stone roll on the other a better arrangement is adopted. Certainly this arrangement offers many advantages over the present system, chiefly in the fact that coarser grades of ground wood can be used with less power consumption, or finer paper can be made from the same wood. Again the circulation in these beaters, as they are designed at present, would run as high as fifty feet of 7% stuff. In the higher grade papers, this capacity of beater would be entirely too large The tendency seems to be, as very many paper makers are inclined to think, that larger engines are being installed than would give the best results. Of course, it is desirable to eliminate on the lower grades labor cost, but where the beaters are charged with slush pulp, this makes little difference. It is simply a question of most efficiently applying the necessary power to the pulp, and whether this can be done on a large or small engine is a question to be figured out, and not be guessed at, as is usually done for each individual case.

EDITORIAL COMMENT.

The new trade treaty with the West Indies, which provides improved freight and passenger service, should mean something to the Canadian paper trade. There is in those islands a fairly good field for many grades of paper which we should supply. The contract has been placed with Pickford and Black for the service between St. John and Halifax and the West Indies for a twelve day service.

The subsidy granted is a heavy one, and is contributed, for the present, by Canada alone, the West Indies being unable to co-operate immediately because of the conditions of the mail service in the West Indies and the obligations entered into with the Old Country for the present service and continuing to 1917. Before the conclusion of the present service these obligations will have fallen in and the way made open for co-operation by the West Indies.

The "Toronto Globe," says: "It is to be hoped that the paper makers of Canada will suspend for a time the fascinating pastime of issuing securities and stick to paper making."

Very good advice.

The latest issue of the "Labor Gazette," in a report of the proceedings at the recent meeting in Montreal of the Trades and Labor Congress of Canada, prints the resolution of the congress which condemned the employment of the militia in preserving the peace in Vancouver, suggested that the congress should put itself on record as being opposed to union men joining the militia, and approved of the action of certain international unions which forbid members to be connected with the militia. The "Labor Gazette" is a Government publication. In this case it is using the machinery and prestige of the Government to spread throughout the country what is designed to injure a Government service and affront the young men whose patriotism sustains it.

CONCRETE FLOORS.

Next time you have to repair a concrete floor, do not patch it the old way. You will then always have some part of your floors in bad condition or under repair and always be bothered with them.

Make an entirely new hard top coating.

Wash the floor well with hot water and clear it of specks of grease and other impurities by scrubbing with a weak caustic solution (caustic soda). Wash the caustic well off with hot water.

Place laths 1¼ x 1¼ ins. at above 8 ft distance.

Make a mortar of one part of portland cement to two parts of clean sharp grained and not too fine sand. Mix it well dry, add just enough water to make the water appear when the mortar has been hard stamped down on the floor. Mix thoroughly after the water is added. Stamp mortar on each side of the laths, fix in mortar between and stamp it down hard. The top of the mortar should now be above the top level of the laths all over.

Level the stamped mortar to the heights of the laths with a sharp edged straight plank. Take the laths out and fix in well with mortar.

Smooth off with a large steel plastering trowel and fill in imperfect spots with mortar.

Next day polish the floor with the plastering trowel until the surface is quite hard and blue in color.

If imperfections are found in the floor when it is to be polished, fill in with mortar of above composition and work it in well before the spot is polished. Don't use dry cement to fill in those inperfections, this will take a quick polish but will not last.

Keep the floor moist for several days, spread it with damp sawdust and moisten this twice a day.

This floor top will cost about twice as much as an ordinar floor top but will last four to five times as long.

If you can not afford to give the floor time to set and harden properly, use a two to three degrees Beaume solution of silicate of soda instead of water, but make only a small quantity of mortar at a time, work it in quick, smooth and polish as it hardens quickly and if hardened before it is properly levelled it will make weak spots in the floor.

Floors made this way are, however, not so good as floors made as first described.

Use hard wood wheels or rubber tyres on your mill trucks. The repair and renewal of those will cost you less than the repair of the floors.

If you can afford it, lay your mill floors of floor tiles, they will last a life time, you will always have a smooth floor to run the trucks on and they take hardly any repairs.

RUSSIAN PULP WOOD.

Russia is about the sole source of supply for fir papermaking wood on the German market, and new contracts have recently been made showing a considerable advance on old prices. The paper pulp and cellulose mills are generally competing keenly for raw material. Stocks in Germany are being rapidly depleted, and the paper works and cardboard works of that country are doing a large business.

POWER CONSUMPTION WHEN BEATING HALF AND WHOLE STUFFS

By ARNOLD REHN

CHAPTER III

COMPARISON BETWEEN LARGE AND SMALL BEATING ENGINES

IT WAS not possible for me to carry out trials with regard to the power consumption of engines of various sizes, but I am glad to be in a position to give some observations showing the difference in power required when employing large and small engines of similar construction. It is generally assumed that small beating engines require comparatively less power than larger ones, and this view has been completely corroborated by my researches. Beadle however, prefers large engines, and believes there is a saving in power consumption as a result of the empty running of a large beating engine being proportionately less than that of the small one. Although there is no doubt on this question the slight saving obtained cannot, in any way, make up for the greater expenses for empty running and circulation which occur in a large engine, owing to the greater quantity of pulp requiring a greater length of time for beating. This is the result of the increased beating surface, generally, not being able to keep pace with the increased charge. The same thing applies to the width of the rolls, whereby, when only the trough is made larger, the speed of circulation is affected. In a beater for a charge of 420 kgs, for instance, three times the amount of pulp would have to be circulated per minute as in an engine of 140 kgs capacity, a thing which is almost impossible. If it were possible to finish the beating in a large engine in the same time as it takes for a small one there would certainly be a saving of a kind pointed out by Beadle, but, according to my observations, this is impossible, as the larger engine required 290 minutes, whilst the smaller one produced even better stuff within 195 minutes. Thus it will be seen that a large engine of a certain capacity has a smaller output than a number of smaller engines having the same total charging capacity. In the trials which I had carried out, a pure cellulose paper was used, and in order to be certain of the results the trial was repeated several times.

Table 7 shows the values obtained in the tests. These values may be easily compared as they all refer to 100 kgs of fibre stuff. It will be seen that the small beater required 11kwh less than the large one, principally on account of the reduced power required for empty running and circulation (23.6 kwh compared to 31.4 kwh). The power required for the beating, probably as a result of the reduced friction of the knife material, sank from 28.6 to 25.4 kwh in the case of the small engine, whilst, compared with the total power consumption, it rose from 47.7 to 51.8%, thus proving that the efficiency of the smaller engine is better than that of the larger one. The times required for beating 100 kgs in engines of various sizes should not be compared without taking different other factors into consideration. As the comparative size of the same was as 3 to 1, the time required for beating in the large engine should only have been 140 divided by 3, equals 47 minutes. 67 minutes were, however, required, so that the large beating engine required 20 minutes longer than the small one for beating 100 kgs. The pulp beaten in the small engine was also somewhat better than that in the large one, as the strength of the paper made therefrom shows

Notwithstanding all these facts the employment of a number of small beaters in place of larger engines is not to be recommended. In practical operation large beaters have a number of great advantages calculated to amply recompense the higher power expenses. It would take up too much space to describe all these advantages here, but I would like to point out that it is quite possible to utilize the same without increased expenses for power by providing two rolls in the large engine, or by using a special agitator. Although I am not in a position to give actual figures with regard to power consumption of such engines, my experience on this subject leads me to believe that they would work to great advantage.

I would like to take the opportunity of making a few remarks on the subject of the knife material employed. My attention was called to the importance of this question by the following observation. A new bed plate had been inserted in our beating engine, but after only a few days the engineers of both shifts complained that the engine in question no longer beat well, although the contrary should have been the case. Diagrams which were taken showed that the consumption of power had indeed become considerably greater than formerly, and as the beating also took more time the efficiency of the engine was reduced. No other changes having been made in the engine it is quite clear that the fault rests with the material used for making the bed-plate knives. Enquiries showed that the bed-plate, after being empered in our workshop, had been placed outside the door to cool, where, being no doubt subjected

TABLE VII. Comparison between large and small beating engines. The valves refer to 100 kg. pure fibrous material.

Kind of Engine.	Pure fibrous material contents	Total power consumption for work in engine reckoned per 100 kg of fibrous material	Power Consumption in K.W.H. For idle running	For circulation of the pulp	For the beating work	Percentage of Total Power Consumption. For idle running	For circulation of the pulp	For the beating work	Duration of beating per 100 kg. fibre in minutes	Quality of Paper Fraction length in metres	Dilatation
		K W H									%
Large engine	417	60	3.9	27.5	28.6	6.5	45.8	47.7	67	5290	4.2
Small engine	140	49	2.3	21.3	25.4	4.7	43.5	51.8	140	5410	4.5

to a current of air, a subsequent hardening of the material probably took place. This unintentional hardness of the material caused the increased power consumption. It is therefore, advisable, after tempering the bed-plate, to allow it to cool in the ashes of the smithy fire. After having adopted this practice we noticed no material changes similar to the one above on inserting a new bed-plate. The above case however, only shows how very cautious one must be in the choice of the knife material both of the bed-plate and of the rolls.

Difference in Power Consumption when Beating Stuffs in Common and Individually with Subsequent Mixing in the Mixing Engine.

From the whole stuff diagrams published it will be seen that the various raw materials, such as linen, cotton, cellulose, straw stuff and paper shavings were beaten together in one engine. The long fibred raw materials such as linen and cotton were beaten first and the other material subsequently added. I would not for a moment, however, like to assert that this is the correct way of doing things. The conditions in our works did not allow of trials being made to show the saving which would occur in power when the various raw materials were individually beaten and subsequently mixed in the proper proportions in the mixer, as only diagrams and measurements can be taken of an electrically driven beater whilst the other whole stuff engine was driven by steam power. Beadle, in his work, "The Theory and Practice of Pulp Beating" touches upon this subject, without, however, going thoroughly into the matter as he was unable to make the necessary trials. It is not an easy matter to find working conditions which would allow of such tests being accurately carried out, and it will therefore be advisable to try and draw our conclusions on this subject out of the diagrams which the automatic recording dynamometer has provided us with up to the present. We have seen that the power consumption for the idle running of the engine and the movement of the stuff amounts to 60% and more of the total consumption of power. One must therefore endeavor to allow stuff to circulate in the beater only so long as is absolutely necessary to obtain the required greasiness. The time and the roll pressure required for beating the individual raw materials into whole stuff vary so considerably that when beating in common in one engine, one or other of the materials must suffer. Even if we accept Beadle's assertion that the roll principally grinds the hard and long fibre materials, whilst sparing the shorter fibres, we must admit that the unnecessary circulation of the latter in the engine is at least equivalent to wasting power. In an article in the "Papier Fabrikant" 1909, page 1205, entitled "What is to be learnt from the waste water" I have already described trials whlch were carried out to determine the advantages of individual beating and subsequent mixing, compared with beating in common. The examination of the waste water from the paper machine at that time proved that the material losses were shorter and softer raw material being beaten too long in order to reduce the harder material to the correct length and fibre. It was at the same time determined that the strength of paper made from common beaten stuff was considerably less than that made from individually beaten stuff, consequently a considerable part of the work of beating was employed for impairing the quality of the paper. The power required for this purpose, as well as that required for the above mentioned unnecessary circulation of the stuff go to make up the saving in power obtained by individually beating the stuff and subsequent mixing, to say nothing of the superior quality of the paper produced. Although, as said above, I am not able to give definite figures regarding the saving, I believe I am making no mistake when I state the same may be very considerable, especially in such cases where the furnish of the raw material differs very much in fibre. A much better efficiency of the engine is also obtained, as the process of preliminary beating described above results in the beater running only partly filled for a number of hours.

Consumption of Power when Passing Cellulose and Paper Shavings through the Edge Runners, and Saving of Power when Charging Stuff thus treated into the Beater as Compared with manual Charging.

The charging process, as will be seen from the diagram, lasted about 45 minutes; it was then interrupted in order to clean the doctor, and the edge running then continued. The consumption of power rose from 7 to 24 kw, whilst charging, and then remained stationary. The impulses, which showed a difference in power consumption of up to 5 kw during the charge, disappeared completely. The process was completed in about 170 minutes, and discharged in about 18 minutes, whereupon the power consumption again fell to 7 kw. As shown by the diagram the power consumption amounted to 66 kwh, 100 kgs of these paper shavings thus requiring 13.2 kwh for working up in the edge runners which, reckoned at 4 pfg per kwh equals 0.53 M. This power consumption naturally does not apply to all sorts of paper. Papers beaten very greasy and highly sized require up to 20 kwh per 100 kgs, whereas printing papers and papers containing wood require only 9 to 10 kwh. A previous softening in hot water and the addition of hot water to the edge runners pays well, owing to diminished consumption of power resulting from the accelerated process. In this manner up to 5 kwh per 100 kgs, costing about 20 pfg, can be saved, whilst the cost of steam for warming the water for each 100 kgs of paper amounts to about 4-5 pfg. A saving of about 15 pfg per 100 kgs is the result. The working of cellulose is still cheaper, and about 10 kwh are required to produce well worked cellulose, or in other words, about 40 pfg per 100 kg of air dried cellulose. Everything depends of course upon the extent to which the edge running process is carried, and this in turn depends upon the quality of the paper. If the edge runner is only used for producing stuff which can be charged into the beater with greater facility, thus saving time, 4 kwh per 100 kgs will suffice, although it would then be more advantageous to employ a kneading machine. One of Werner and Pfleiderer (Cannstatt) kneading machines was at my disposal in our works, in which the same result was obtained with only 2.5 kwh. This was caused firstly, by the idle running of the edge runner, including the cellulose which remained on emptying, amounting to 7 kw, a comparatively high figure, and secondly, as a result of the slower charging process.

As the preparation of the cellulose in the kneading machine does not lead to any improvement in the quality of the paper, the question will crop up as to whether the charging of such prepared cellulose is cheaper than charging the beater by hand, thus justifying the employment of the former process. If we take an engine similar to the one for 450 kgs air dry charge mentioned above, we shall find that at least 25 minutes is lost in charging by hand compared with the process in which the cellulose is tipped into the beater out of the tipping car after being treated in the kneading machine. The trial made in this respect shows a much greater loss of time, but we will assume 25 minutes to be the actual loss, as our workpeople had very little experience in charging by hand, and as a result probably took more time than would otherwise be the case. A loss of 5.5 minutes per 100 kgs was the result, the time being reckoned as long as any large pieces were found in the beater i.e. until beating could be commenced. During these 5.5 minutes the engine required (taking into consideration the impulses occurring whilst charging) about 28 kw, that is

$$\frac{5.5 \times 28}{60} = 2.6 \text{ kwh.}$$

As the preparation in the kneading machine costs about the same for 100 kgs. it will be immaterial, when considering power consumption, which process is employed when charging. The power expenses of a kneading machine reappear as a saving in the beating operation. It is, however, different when the cellulose is treated in the edge runner. This process will naturally only be employed when the quality of the paper demands it, and as seen above, about 10 kwh will be required for this work. The 2.6 kwh saved when charging the beater must, however, be deducted from the above figure so that only 7.4 kwh remain. This pays when the beating, as a result of the previous treating of the cellulose in the edge runner, can be reduced by about 11 minutes per 100 kgs of stuff. If, besides other stuffs, about 50% of cellulose treated in the edge runner, that is, 225 kgs, have been charged in, it would have to be possible to reduce the total time of beating by about 25 minutes in order to cover the expenses of edge running. A power consumption of 40 kw has been assumed for the engine, which is the figure obtained when beating cellulose to greasy pulp. When greasy pulp is required it can be generally asserted that this saving in time is possible by using cellulose previously treated in the edge runner, although an advantage in this direction is very seldom noticeable. On the other hand it should not be forgotten that, by the addition of stuff treated in the edge runner, the paper is given certain properties which could not otherwise be obtained, even at higher power expenses by a lengthier and appropriate beating process. The comparison between edge running and beating given above is only applicable when the strength of the paper comes into consideration, but as soon as it is intended to produce strong paper of a close and elegant look-through, good touch, etc., (normal and book paper) it will not be possible to do without a partial treatment in the edge runner, even though the expenses are somewhat higher. Besides the power consumption the edge runner process also implies increased wages, whilst the treatment of cellulose in the kneading machine enables the staff of the beating engine to be reduced.

In summarising it might be said that the working up of cellullose in the kneading machine caused no increase in the power consumption, although resulting in a saving in wages. The treatment of the cellulose in the edge runner sometimes requires a slightly higher power and increased wages although these expenses are not noticeable in the case of better class paper. The power to be reckoned for edge running depends upon the time which is saved in beating. If it is not possible to save this amount of time, 7.5 kwh at 4 pfg = 0.3 M. per 100 kgs for power, and about the same expenses for wages, making a total of 6 pfg, must be reckoned for edge running. The power expenses are, however, equalized by the reduced beating so that only 3 pfg remain. It is, therefore, easy to ascertain the figures which apply to each individual plant by finding the saving in time which occurs when cellulose treated in the edge runner is employed. The power consumption required for working up paper shavings in the edge runner depends upon the quality of same, and fluctuates between 10 to 20 kwh for 100 kgs.

Quite a number of salient factors referring to the beating process, which are important both for power consumption and quality of paper, have been considered in the present article. Although it was not possible to answer all the questions which occurred, so that an explanation is still outstanding for a good part of the beating process, I nevertheless hope that the possibilities of power economy which I have been able to point out, may be profitable for some of my readers. The numerical values of consumption of power per 100 kgs of beaten pulp will be of interest, not only to the papermaker, but also to the merchant, inasmuch as they enable a more exact calculation to be made than hitherto. As no definite particulars on the subject of beating expenses were hitherto known the papermaker was obliged to reckon them to the general expenses. The most usual manner appears to be to divide up the total expenses into machine hours, so that that paper which gives the greatest output also has to bear the greater share of the expenses in the calculation. This process may be right in the case of machine work, wages, amortisation and so on, but it is not justified in the case of power, for it does not always follow that a paper of low production would require heavy beating expenses. We have already seen how very different the beating expenses are for individual sorts of paper, differences of about 1.5 Marks per 100 kgs occurring among medium papers containing wood. These differences play a very important part in present-day methods of calculation. The correct procedure would therefore appear to be that of ascertaining the cost of beating the various sorts of paper, and doing the same with the cost of material, whilst all other expenses should be divided into machine hours. In this manner it will be possible to obtain a much more accurate cost of production.

It is to be expected that the particulars here given relating to the power consumption required for a number of various kinds of paper, will induce other papermakers to make comparisons with the engines of their own plant, in such cases where it is possible for them to obtain accurate measurements of the power consumption of their beating engines. I would therefore not neglect to mention that the electric energy in my trials was measured at the motor, so that the idle running of the latter is also contained in the figures given. In the division of the total power consumption into individual processes the figure given for idle running therefore always covers that of the beating engine and the motor. Professor Kirchner in his frequently mentioned text book has published reports on his researches in which he states that the power consumption of the Wolfswinkler beating engine is too high. Unfortunately, however, he did not give the necessary consideration to the quality of the papers used in his trials, as he himself admitted upon my pointing out of the fact, so that his results are not to be looked upon as absolutely reliable. In one of his trials Professor Kirchner furthermore found that the momentary power required for circulation of a certain thickness of stuff and an equal charge was only half that required by the Wolfswinkler engine. This caused Professor Kirchner to express the opinion that the efficiency of the latter engine was unsatisfactory. On going deeper into the matter, however, it was ascertained that the circulation of the pulp in the Wolfswinkler engine took place at about five times the speed obtained in the engine in which Professor Kirchner took his measurements. It therefore follows that in the Wolfswinkler engine about five times the amount of stuff was treated with only twice the power. This naturally speaks very much in favor of the Wolfswinkler engine, but is only mentioned here in order to show how very cautious one must be in making comparisons. The composition of the stuff and the strength of the paper in question is given for each diagram, and when sufficiently considered will allow of reliable comparisons being made. When it is desired to compare the momentary power consumption, which should only be done when the roll is raised, as the position of the latter when beating varies so considerably, one must take into consideration that the Wolfswinkler engine, at about 6% stuff density, has a speed of approximately 10 meters, from which, with the aid of the dimensions and further data given above, it will be possible to calculate the amount of pulp to be accelerated per minute. Comparison must show that the quantity of stuff accelerated is at least approximately the same

It is of course not my intention to say that the Wolfswinkler design is the non plus ultra of all beating machines. This could not possibly be the case, for the simple reason that the beating engine in which strong paper rags are treated today, medium cardboard tomorrow, and so on, has to be capable of fulfilling multitudinous demands, and can only be looked upon as an intermediate affair. There is no doubt whatever that better designs exist for beating rag stuff on the one hand and inferior stuff on the other hand, and the old proverb "What suits one does not suit all" can be very well employed here.

The writer is of the opinion that the direction followed by a great number of engine designers of the present day, i.e. the obtaining of great speed with thick stuff, is the only correct way to increase the output, and at the same time reduce the power consumption for 100 kgs of finished stuff. The best results in this respect in recent years have probably been obtained by the well-known beating engines of Eichhorn in Dusseldorf. This experienced authority has been able, as the writer has personally been able to prove, to so skilfully improve the construction of the trough, the hood and especially the form of backfall to obtain 15 meters speed at about 7% stuff density (without addition of minerals), a result which has certainly never been surpassed. Unfortunately, certain power measurements are not at disposal with regard to this engine, but there is every reason to suppose that these also are favorable.

If we again cast a glance over the material collected herein it will immediately be seen, both in the case of breaking in and whole stuff beating, how very dependent one is, not only with regard to the quality of the paper, but also with regard to the power consumption, upon the engine attendants and especially the engineer. Fluctuations in power consumption of up to 20% are not a seldom occurrence with the most reliable engineers, as a result of the stuff being sometimes beaten slowly and greasy, and other times quicker and shorter. It is no good saying that this can only happen in the case of unreliable engineers. I have been able to record fluctuations of almost the same extent in our own record, although our engineers are really good and experienced men, who furthermore knew that their work was frequently being controlled with the aid of a recording dynamometer. These fluctuations are not nearly so noticeable in the stuff as may be imagined and I am convinced that, notwithstanding regular testing, they would not have been remarked if it had not been for the dynamometer. Therefore, only the most intelligent workmen should be employed as engineers, and rational treatment of the beating must be obtained by good instruction of the men as well as by conscientious supervision. I would also like to point out the excellent service rendered by an automatic recording dynamometer. The latter presents the best possible means of controlling the beating operation. The apparatus can be switched in without the knowledge of the engineer in charge, and with it the beating process of a number of engines may be controlled one after the other. Such an apparatus also does excellent work when it is necessary to give the paper a certain special character as a result of the beating process. If a diagram of an engine which supplied satisfactory stuff is once obtained one is always in a position, with the aid of the accurate record of the beating work, to produce a stuff of similar quality under similar conditions of power consumption, provided naturally that the charge and the raw materials remain the same. In other words, a certain scale has been attached to the engine from which the position of the roll may be read off at any time in order to ensure uniformity in the beating process. These scales, however, change as the knife material, etc., of the engine wears, whilst working according to power consumption diagram is not affected, the roll being simply lowered in proportion to the condition of the knives, before the power consumption required for the beating is obtained. It is consequently possible to give the engineer accurate figures regarding the power consumption in amperes required by the beating process at various times, so that as the voltage remains unaltered the fixing of an ampere-meter on each engine suffices. Only one single automatic recording dynamometer is then required for all engines, but in order to make good supervision possible this must be so arranged that each individual engine can be connected up. The calculation of the power consumption in amperes takes place, as is well known, by dividing the same in kw by the voltage. Thus a power consumption of 30 kw at 220 volts equals

$$\frac{30\text{x}1{,}000}{220} = 136 \text{ amperes}$$

In this manner all that is necessary for the engineer to do is to closely adhere to the prescribed amperage at the times given, thus relieving him of the necessity of beating the stuff by feeling alone. It is thus possible to make oneself much more independent of the engineer than has hitherto been the case; the stuff remains the same even when different persons carry out the beating, this of course as long as the stipulations are properly followed. The advantages regarding the uniformity which result can be easily imagined when it is observed what great differences occur to the stuff on the shift being changed, to say nothing of the production of a certain paper exactly like the paper previously supplied.

I am now at the end of my remarks. We see that electricity, which has become useful to the paper maker in so many ways, also presents new possibilities with regard to the beating process.

Apart from the ready measurement of the power expenses, which allows of the beating process being rationally carried out, separate electric driving of beating engines has a number of other advantages, as losses in transmission gears are avoided and the running of the machines may be interrupted at any desired moment.

This latter, hitherto, was only possible in a very few works, which the engines were provided with loose pulleys. It is therefore not only very agreeable, but means a great saving in power as when disturbances occur in the paper machines, as is often the case, the beaters whose contents are already beaten, can be immediately switched out. The danger also existed hitherto of the attendant allowing the beater to run a great deal longer than was necessary in order to avoid the disagreeable work of throwing the belt off and on. Much valuable power was thus expended unnecessarily, besides frequently making the stuff too greasy, resulting in differences during the treatment in the paper machine. The electric drive promises to be especially advantageous in engines in which the pulp to be beaten is intended for papers of very different qualities. It is then advantageous to employ motors with changeable r.p.m., allowing of the roll being regulated to suit the different kinds of stuff. This would certainly lead to considerable saving in power, to say nothing of the technical advantages. Up to the present I have not heard of the existence of any such plant, but should such an one really exist, I should at any rate be very interested to find out what success has been met with. I am of the opinion that the possibility of changing the r.p.m. has proved to be quite practical in such cases where the roll knives have become somewhat worn and the velocity of the stuff has suffered as a result, the cells between the knives having become smaller. There is then of course the possibility of driving the roll at a higher speed, and thus again bringing the velocity of the stuff up to its normal figure, as a result of the increased centrifugal power. I should at any rate advise the use of individual electric drive as far as possible in all equipments, and the remodelling of existing beating plants. This will thus place one in a position to accurately investigate the most practical and economical way of beating under the existing conditions. Many old beaters and many badly designed engines would then be recognised and scrapped, instead of allowing them to cause losses in power for a number of years, as would otherwise be the case. Our efforts towards improvement have in recent years been principally turned towards the development of the paper machine in particular, which may now be looked upon as a machine possessing the highest technical qualities; let us now endeavor to do the same with the beating engine, which will undoubtedly repay us.

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WANTS PAPER BROOM HANDLES.

That the paper manufacturers will realize a great, lucrative market in the near future is the prediction of B. F. Muckleston, manager of the Standard Broom Company, 500 North Hope street, Philadelphia. This company has one of the largest mills, factory and jobbing houses of brooms in the country, and Mr. Muckelston is in a position to know the conditions thoroughly. He claims that the prohibitive prices placed on broom handles of wood make it vitally necessary for the manufacturer to turn his attention to a practical substitute, and that substitute he logically believes to be a handle of paper.

"A handle of paper," said Mr. Muckelston, "would be very inexpensive, would be more serviceable than many other materials and would last as long as the life and usefulness of the average broom made today.

A manufacturer placing this article on the market would actually revolutionize the broom and brush market of the country, and it would mean an enormous trade to him, both in a domestic and foreign sense. Handles of paper might be made to sell for prices ranging anywhere from $12 to. $15 per thousand, which would mean much to the manufacturer of brooms, who now pays very much more than for ordinary wood handles. So far as the consumer, or anybody for that matter, is concerned, the paper handle would be equally as serviceable and would immediately reduce the cost of brooms. I am certain that this innovation would meet with the approval of broom manufacturers all over the United States. It would instantly boom business both for the broom and paper maker."

This statement from a big manufacturer has merit and the weight of authority, and should serve to awaken the paper making industry to the possibilities in this new line of endeavor.

PAPER PULP.

A New Industry in Australia.

The manufacture of paper pulp has just been commenced in Australia, and is an indication of the establishment of a new industry there. At the opening ceremony in connection with the Yarraman Works in Queensland, the Governor of that State (Sir William McGregor) said he felt proud at being the one to open the industry, which was the first of its kind in Australia, and he was sure it would become a very important manufacture. As civilization increased so did the demand for paper. The next move, he trusted, would be the erection of paper mills, as great pecuniary advantages in manufacture were lost by having to export the pulp to the southern mills. His excellency concluded his remarks by stating that he was convinced that Australia possessed many growths from which paper could be manufactured successfully. He mentioned especially the prickly pear and grass, of which there was an abundance that was not useful for fodder. He considered the destruction and waste of fine timber in Queensland was disgraceful, and trusted that experiments would be made in the near future in other directions.

OVER CAPITALIZATION OF PULP AND PAPER MILLS.

The "Journal of Commerce," Montreal, took the following stand last week editorially:

"The statement issued this week by the Spanish River Pulp & Paper Co., Ltd., contains much food for thought. There has been altogether too much srock market manipulation in connection with the pulp and paper industry during recent years. No sooner had it become generally known that Canada possessed the largest available pulp forests on the Continent and the prosperity of the established mills became evident than promoters commenced to build pulp and paper mills in all parts of the country. These promoters were more interested in the stock market end of the situation than in the paper making end. Almost all of the companies so incorporated were over capitalized and as a result started operations woth a tremendous handicap. Instead of making paper in the mills, they made it in the broker's offices."

"Already a number of pulp and paper companies have been more or less reorganized and, if all reports can be believed, others will be forced to go thorugh a process of reorganization before very long. In Quebec, the Eastern Canada Pulp & Paper Company is in liquidation and its fine new pulp mills closed up. In British Columbia, two mills, The Ocean Falls and The Western Paper Mills are both closed. The former was heavily over captialized and so managed, or mismanaged, that the English shareholders who financed the project lost heavily."

"The pulp and paper industry in Canada has a great future but that is no reason why paper mills should be built up on every siding nor is it a reason for over capitalization. We believe in combinations and mergers when these can be affected on a legitimate basis, but the time is past for the injection of huge quantities of water every time two companies are brought together. This applies not only to pulp and paper companies, bit to other enterprises as well. In the case of the Spanish River Pulp & Paper Company, careful management will probably bring the company out alright. They possess extensive and valuable limits, excellent water power and good manufacturing plants. It will be some time, however, before the securities of this company fulfil the expectation set forth in the company's prospectus."

THE USE OF WOOD WASTE

Recent experiments demonstrate the complete practicability of utilizing wood waste from lumbering and sawmill or other wood-working industries in the manufacture of paper pulp. Where the wood is resinous in character, it has been demonstrated that, in the case of certain pines and firs, by-products of great value may, in addition to paper pulp, be secured from this source, in the form of turpentine, charcoal, wood alcohol, etc.

A cord of waste wood costing from $2 to $4 delivered at the works, may yield products worth nearly fifty dollars. The waste material so utilized comes from the wood left in the forest from lumbering, dead and fallen timber, stumps of cut over lands, and slabs and edgings from the mills. Pine and fir stumps have been profitably utilized in this connection, especially where the removal of stumps is desirable in order that the land may be devoted to farming purposes.

Under the usual methods of utilization, not less than 60 per cent. of the volume of the tree as it stands in the woods is wasted in converting it into lumber. This waste material is now becoming recognised as a potential source of great revenue, through the establishment of properly located plants for the manufacture of some or all of the above by-products. This tendency will become increasingly strong with the inevitable decrease in the extent of virgin forests.

GENERAL NOTES ON SULPHITE PULP

By LEO. SCHLICK, M. E.[*]

THE direct cooking process invented by Kellner, an Austrian engineer, is generally adapted in America, while the Mitscherlich process known as the indirect is in general use in Austria, Germany, Scandinavia, etc.

As the European market demands paper with a special elasticity and ability to stand strain, classified by placing the order, it is of the utmost importance, to manufacture an extra strong and long sulphite pulp which can be brought in greater strength by the Mitscherlich process than by any other.

Mitschlerlich digesters are upright, having capacity up to 300 cubic meters equal to 10,500 cubic feet. As a cubic meter generally gives a yield of 85 kg, the output of such a giant digester is 25 tons per cook. The cooking time generally lasts 18 to 40 hours, depending on the grade of pulp to be manufactured.

The writer has seen such giant digesters installed in a most modern Dutch mill and learned that a digester of 6½ meters diameter equal to 21 feet by 14 meters high equal to 46 feet has lately been installed by a Bavarian concern. These large digesters have a double brick lining of approximately 6″ thickness and are heated by means of copper coils, same being placed in the lower part of the digesters, and held by means of hard lead brackets.

On older cook in such a giant digester is the following;

Time		Temperature	Pressure
3.15	night	36–30	0.8
7	day	74–71	3.0
10		96–90	3.3
11		100–93	"
1		102–94	"
3		113–108	"
5		115–113	"
7	night	119–119	"
9		120–121	"
11		125–120	"
1		125–119	"
3		120–120	2.8
5		128–120	2.4
7	day	ready	2.2

These digesters are washed twice with warm water, and are not blown out but emptied through the bottom cover. It is impossible to blow out these large digesters as the coils are covered with burned fibres which would spoil the cook if disintegrated. We might mention the advantages of these boilers is in the strength of fibre, because:

1. The acid is not diluted by condensed steam and therefore of the same strength in all parts of the digester.
2. The acid is of considerably less strength than in the direct process, this being very advantageous to the fibres themselves at the beginning of the cook.
3. Splendid circulation.
4. Longer digesting process depending on the use of the coils, preserves the natural length of the fibres and allows low steam pressure.

And the yield is larger per cord.

These digesters, however, require labor in emptying and a larger capital outlay. As I pointed out before, these digesters produce a very strong fibre, which however, cannot be used for every grade of paper, though the modern pulp makers are able to cook special pulp for grease proof-imitation parchment, etc., etc. The writer saw, for instance, Mitscherlich pulp beaten up within 2½ hours in European beating engines into a high grade grease proof paper. However, this pulp was especially cooked for the purpose, and beaten in beaters of modern European design.

The advantages of the **direct** cooked pulp are its softness especially suitable for high grade writing papers and the like, and its suitability for an easy bleaching pulp. In order to combine the advantages of the direct and indirect cooking processes, most Scandinavian and European mills are cooking in recent years with direct and indirect steam up to a certain temperature—108° C.—and finish the cooking with the indirect system. or cook with both direct and indirect. This is justified as the liquor requires the most heat units in its temperature to the cooking temperature and no harm can be done to the Mitscherlich itself process in heating up with indirect and direct steam together if only the acid has the right strength at the beginning of the digesting. The cooking process is thus shortened considerably without interfering with the process. The Kellner—direct cooking process lasts mostly only 10 to 15 hours—though Kellner distinctly made special claims for the manufacture of a short cooked pulp and a medium and long cooked pulp.

As pointed out above, the direct cooked pulp is soft and of excellent pulp for writing and high grade printing papers. American manufacturers prefer to use the Kellner direct cooked pulp as a rule, while the European pulp maker uses generally Mitscherlich (several large concerns cook also directly for their own use) and adds a certain percentage of a good waste paper, etc., this obtaining the same results. Another help for the European paper maker is his excellent beating engines which he is using in which he carefully splits and "fibrilizes" his fibres, not shortening them in a Jordan. In fact, if the beating surface of a beater is properly proportioned, a Jordan engine is not required for most papers, it being only an additional beating surface.

The European paper maker is compelled as I mentioned before to deliver his goods according to a classified and specified stress. measured in Kilometers. That means if the paper has to have a strength of 4 kilometers it means that a sheet of a length of 4 kilometers would not break by its own weight under the mentioned limit. Special testing machines serve this purpose and register elasticity as well as strength in one operation. As it is of the utmost importance that special papers, destined for important purposes, have to have a long life, the American Government demanded a certain guarantee as regards strength last year. The bids however have not been very numerous. We should however, be prepared to expect some day similiar requests as scientific books, etc., for instance are expensively to be printed and should be preserved. Although the chemical and mechanical wood pulp industry has had an enormous development we cannot say that the lifetime of the paper has been lengthened against the paper our parents used to "make."

Acid making in Europe is done as well by the tank system as by the tower system.

The tank system Dr. Frank, for instance (similar to the Burgess type), is formed by 3 tanks, same being placed that one tank can be emptied by gravity into the next one. The SO_2 gases are pressed by compressors into the lower wooden tank. The SO_2 gases which are not absorbed enter then under pressure the second and hereafter the third tank. These tanks are fed with lime water and are provided with agitators. The upper one receives the fresh lime water, afterwards being emptied in the middle and thence the lower tank. The pressing of SO2 gases in the lower tank takes place as long as the acid has the strength required. The lime water is prepared in a small chest provided with agitators. The SO2 gases are generally produced in flat burners in Europe sometimes provided with water cooled chest, sometimes without. The capacity of large water cooled flat burner is sufficient for a 20 to 25 tons unit (10% sulphur consumption).

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[*] Chief Engineer, in pulp and paper, Boving & Co. of Canada, Limited, Toronto.

The burners are mostly fed by compressed air, and the burners have a compressed air inlet as well in front as on the back, in order to mix the burning sulphur thoroughly with air. The SO2 gases pass a "sublimator" composed of a water cooled upright cylinder provided with a guide plate. In recent years also gas washers have successfully been used, the same being placed after the combustion chamber. The reclaiming of SO2 gases is done by pressing the relief gases through coolers. The condensed strong liquid is directly mixed with the acid in the reservoirs. The relief gas line is connected also with the acid reservoirs, being made generally from concrete and placed under ground. The acid is brought in these reservoirs to the strength required, thus enabling the pulp maker to do little changes in the strength of the acid, without disturbing the continuity of the operation of the acid plant.

In the newer European mills however the tower system is chiefly adopted, in the Kellner style. In fact, Kellner System is perfect nowadays and it would not be of interest to repeat what is already generally known about it. As (a very interesting improvement is the Canadian patent, taken out by C. B. Thorne and shows the Kellner tower system highly developed) generally known the tower system with dolomite stone filling gives a much whiter pulp, and the cost of dolomite is lower than that of burned lime. The writer saw a very interesting arrangement several years ago in a small European sulphite mill, where sulphur burners were connected to towers without any blowers. The flat burner was placed in the story above the ground floor. As the SO2 gases have a higher specific gravity than the air they sink through the cooler down to the gas inlet of the tower while the natural draft in the tower (in this case an open high Mitscherlich tower) caused the air supply. This is, if course more or less of historical interest as one would hardly use only one single and open tower, except on relatively small capacity.

EXTENDING USE OF SULPHATE FIBER.

"Inquiry among paper manufacturers indicates that sulphate fiber is likely, in the near future, to be much more generally used than has been the case in the past," says Phillip B. Sadtler, engineer, of the Swenson Evaporator Company. "Various experts in the mills express the opinion that besides the manufacture of kraft paper this fiber is adaptable to many of the uses to which sulphite and other fibers are now put.

"Among the possible uses are such as heavy bag paper, container board, building paper, wall paper, tissue paper and magazine paper. Such raw materials as slabs and edgings, tops and round wood of jack pine, yellow pine, tamarack and spruce are used. It is thought, however, that many other kinds of raw material, such as nonresinous wood and straw, will also be amenable to this treatment.

"Samples obtained indicate a considerable progress in the last few months in the line of bleaching sulphate fiber. Six or seven mills operating in Canada have in some cases been developing largely in the direction of quality. About the same number of mills operating in the United States have been making progress in the financial end of this form of manufacture, due to the proximity of the markets."

WOODEN SHOES.

In United States beech is the favorite material for wooden shoes, the manufacture of which has reached considerable proportions in the United States, according to the department of agriculture, which jhas just issued a bulletin on the use of the wood. These shoes, the department says, cost from 60 to 75 cents a pair and are good for two years. They are worn by those who have to work in cold or wet places, such as tanneries, breweries and livery stables, and by workmen in steel mills and glass factories who must walk on hot grates or floors. Farmers, too, are classed among the users.

Beech wood is put to a very much wider range of uses than the average person would be likely to suspect. The department says beech enters into hundreds of articles from hobby-horse rockers to butchers' blocks. We walk on beech floors, eat off beech picnic plates, carry beech baskets, play with beech toys, sit on beech chairs, and in dozens of other ways use articles made of beech almost every day of our lives. Its freedom from taste fits the wood especially for articles which come in contact with foodstuffs, and beech meat boards, skewers, lard tubs, butter boxes, sugar hogshead, refrigerators, dishes .spoons and scoops are widely used.

Only one species of beech grows naturally in the United States, but few trees in this country have a wide commercial range. It extends from the Gulf of Mexico into eastern Canada, and in practically every place where it grows it is cut for market. The total yearly output of beech wood in the United States is approximately 500,000,000 board feet.

INFUSION OF TEA AS TEST FOR GROUND WOOD.

According to the "Chemiker-Zeitung," Professor Votocek, of Prague, has discovered that the tannin of tea possesses many of the properties of pholoroglucin and may be employed as a cheap, readily procurable substitute for that substance for testing papers for the presence of mechanical pulp. A decoction of tea, rich in tannin, of the sort known on the Continent as "Imperial," or "English" tea, is most suitable. About fifteen grains of tea are boiled for five minutes with an ounce of water; the decoction is poured off or filtered and mixed with an equal volume of strong hydrochloric acid. If the liquid is muddy it may be cleared by the addition of a little alcohol. The reagent gives the same red coloration with ground wood pulp as the more expensive phloroglucin reagent. With China teas and varieties poor in tannin the color may require fifteen or thirty minutes to develop with full intensity.

CHINESE TRADE BOOM PREDICTED.

Mr. Edward J. Dingle, Shanghai, in a letter to the "Manchester Guardian" says:

"As a matter of fact it is generally believed that China, despite all political troubles, is on the verge of a great boom. In Shanghai we feel this is so. That the Japanese realise this is evident by the way in which they are booming many of their products, spending huge sums of money in extensive advertising campaigns which extend from end to end of the country. There can be no doubt that now is the time to lay the nets for the tremendous business that must come soon.

"As one who has travelled some 12,000 miles in inland China, and who has studied trade conditions generally in three years' residence in the interior, I should like to say that I believe that now is the time for British manufacturers to move. The Chinese want everything, and they want it as soon as they can be made to believe they need it."

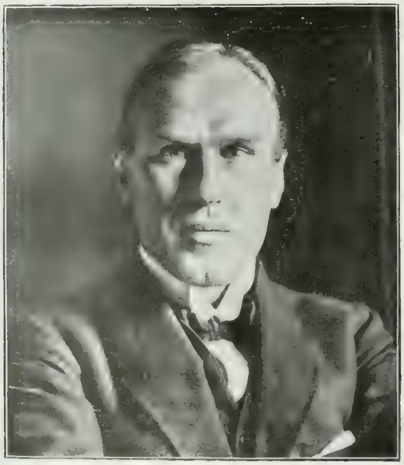
WHO'S WHO IN THE CANADIAN PAPER INDUSTRY

R. S. WALDIE, President, Toronto Paper Mfg. Co.

By W. A. CRAICK

WHEN the late John Waldie, of Toronto, lumber king and capitalist, found himself the father of five sons, it is said that he considered it the part of wisdom to give one of his sons a different training from the rest. He calculated on working them all into his own business, having a fancy for seeing those enterprises into which he had put so much of his energy and personality continue to flourish after his death. But it seemed fit and proper that one of his boys should be educated to view things from a slightly different angle than the rest. This is probably the reason why the new head of the Toronto Paper Mfg. Company went to the University and then to Law School instead of starting right in to learn the lumber business in a sawmill or a lumber-camp.

"Bob" Waldie was a lawyer before he became a manufacturer, but there is little reason to doubt that his brief legal career was intended to fit him in a special way for the work which he was called on to undertake when death removed his father's guiding hand from the extensive affairs in which the latter had been engaged. There are men who essay certain professions and, finding themselves ill-adapted to their pursuit, give them up in favor of some other calling. But this was not the case with R. S. Waldie. He was a good practitioner during the years that he worked at the law and his change of allegiance was preordained.


R. S. WALDIE, President, Toronto Paper Mfg. Co.

A Toronto boy by birth and John Waldie's third son, young Bob was sent to Upper Canada College at an early age. There he soon came to be recognized as a thoroughgoing, good-hearted youth. He had no side about him, put on no airs, did not pose either as plug or sport, but studied his lessons and played cricket, hockey and football with equal heartiness and efficiency,—in short, pretty much the type of student that the late Cecil Rhodes aimed to send to Oxford under the terms of his famous bequest. Unfortunately there were no Rhodes scholars in those days nor did Upper Canada ever have the privilege of naming one and Bob Waldie merely received a nice testimonial from his masters and fellow-students in the shape of a medal that was voted him as the best all-round boy in his class.

Then the Upper Canada student entered the University of Toronto with the famous class of 1899 and amid all the shining lights that it contained, men who have since risen to prominent positions in the church, law, science, and industry, held his own well both in his studies and in sport. He qualified for the first teams in both football and hockey and helped to win many a stiff contest for his alma mater.

They say, the boy is father of the man. Perhaps in some cases it may well be added, and the football player is the prototype of the business man he afterwards becomes. There are those who can see in the maturer Bob Waldie, now a sedate, golf-playing chap, many of these characteristic at work which used to distinguish his play as quarter-back on the foot-ball field. He had grit and determination, was not easily daunted, avoided the spectacular, and showed both brain and brawn in his team-work. Precisely the same qualities these, as are to be found to-day in his business operations.

After graduation, Mr. Waldie spent a year abroad; in other words, he took a post-graduate course in the university of the world. Then he settled down for the three years' grind at Osgoode Hall necessary to provide the open sesame into the practise of law. In due course he passed his final examinations and was called to the bar. Entering into partnership with two other young lawyers, he put in three years as a junior member of the firm of Meredith, Cameron and Waldie.

The death of John Waldie brought to a sudden termination the legal pursuits of his third son and, as an executor of his father's estate, he soon found plenty to keep him busy. He at once succeeded his father on the board of the Toronto Paper Mfg. Company, with which industry the latter had been long associated and at the same time became vice-president of the Victoria Harbor Lumber Company, in which the family interests chiefly centred. The late Mr. Waldie was also concerned as a director in the business of William Barber and Bros. and in the Canada Coating Mills at Georgetown and to both positions R. S. Waldie succeeded.

When John P. Barber disposed of the Georgetown industries to the St. Lawrence Paper Mills interests, Mr. Waldie sold out his stock in both companies, but on the transference of the Toronto Paper Mfg. Company to G. P. Grant and his associates last year, he pursued a different policy and retained his own and the family holdings. There was evidently a certain amount of sentiment in his decision to keep up the connection with the Cornwall enterprise, which his father had maintained for so many years, while on his own part as a director of the company he had come to take a personal interest in its welfare. So, despite the change in control, he remained on the board, and this fall succeeded Mr. Grant as president, having already taken over from Mr. Watson the duties of managing director.

"My policy as president" declares Mr. Waldie, "will be to look carefully after the manufacturing end of the business and to see that our customers get what they want. I am going to conserve the business and run it along conservative lines. I don't care anything about the stock end of it. I intend to manage it as a manufacturing industry should be managed, not with a view to boosting the stock and making profits on its sale.

"The company has recently spent a considerable sum of money in improvements with a view to economies in management and we hope to give our customers the benefit of these economies in reduced prices and better paper. Our improvements include a dry loft which will enable us to turn out any grade of paper from book paper up to the highest grade of bond. We intend to make papers that can compete with the best imported lines. Of course, we sell only to the trade, a policy which will be continued."

The elevation of Mr. Waldie to the active presidency of the Company is a good omen for its future. He will bring to bear careful and sensible methods on its management. Without posing as being in possession of complete information on the subject of paper-making, he is giving the matter thorough study and it will not be from lack of application, if he fails to understand the process. He is now devoting practically all his time to the work of the Company, paying frequent visits to the mills at Cornwall.

The plant, it will be remembered, is located on the Cornwall Canal where the company has a twenty-one year renewable lease from the Government for power. The paper mill contains three paper making machines, with an output of 25 tons per day, and one air drier. There is in addition a sulphite mill with three digesters of 5,500 lbs. daily capacity apiece. The mill turns out book, litho, ledger, bond and writing papers and its market is found principally in Montreal and Toronto.

Mr. Waldie, besides being actively associated with lumbering and papermaking, is also interested in the tanning industry, being vice-president of the Magnetewan Tanning and Electric Company at Burk's Falls. Beyond this, however, his connection with industry does not extend, for he finds quite enough to keep him busy in attending to the needs of the three companies in which he holds office.

If one were to seek for his characteristics, it would be to find that he was gifted with a shrewd business instinct, a natural cautiousness and a desire to get at the bottom of things. He does nothing for effect and never poses as a hard worker, though he always performs his share of any work that may be on hand. He is certainly not easily diverted from a purpose and indeed is playing the game of business to-day with pretty much the same singleness of purpose with which he used to play football fifteen years ago.

Still well on the sunny side of forty, he preserves a good deal of the energy of youth. Though he has long since given up football and hockey, he manages to keep in tolerable form by playing golf and yachting. He has many friends, who all esteem him highly, and "Bob" Waldie is invariably a welcome addition in any company of good fellows.

DIFFERENCES IN THE THICKNESS WITH CYLINDER-MOULD MACHINES.

It frequently occurs that the thickness of the same sheet of pasteboard varies by 5—20%. For avoiding such differences it is necessary to make the stuff gutter into the cylinder trough just as wide as the cylinder itself, and to provide a weir, which will distribute the stuff uniformly over the whole width. The cylinder must be absolutely horizontal and the discharge of the water must be even to both sides. Attention must also be paid that the couch press and the wet press exert on both sides an equal pressure. The felt washer must be as accurately as possible at right angles to the felt, as the felt will else wear unevenly. With finer wires differences in the thickness of the pasteboards will occur less than with coarse wires. Lastly also a stuff distributor may be employed which mixes the stuff uniformly by means of several twirling agitators.

MACHINE GLAZED OPAQUE COVER PAPERS.

In the "Papier-Zeitung" Paul Ebbinghaus, of Copenhagen, tells of the manufacture of machine-glazed cover papers for the English market, which he introduced into a Scandinavian mill, and a translation is given in the "Worlds Paper Trade Review."

The rags were broken in almost to a state of finished stuff and the pulp was let down into draining chests. Sulphite pulp also prepared in the breakers to the condition of half-stuff and three-quarter stuff, soda pulp being similarly treated. All the different pulps were stored in separate chests. The mottling fibres were prepared in a special manner from sulphite half-stuff which was dyed in the kollergang, 10 per cent. of salt was added and after the dye had been absorbed a little sulphate or acetate of alumina was introduced together with some hot water. Latterly the mottling pulp was also sized in the kollergang by the addition of size rich in free rosin and a little casein, each being put in separately.

The dyed kollerganged stuff was allowed to lie for a few days in boxes. Fibre so prepared shows scarcely a trace of a tendency to "bleed out" in the beaters and a sharp mottling with a perfectly white background is obtained. The mottling pulp is added to the beater shortly before emptying.

The furnish for the beaters was made up as follows: 25 per cent. of bleached sulphite three-quarter stuff; 20 per cent. of bleached soda pulp, half to three-quarter stuff; 10 per cent. of hosiery cottons prepared almost as whole stuff; 10 per cent. of American poplar pulp, three-quarter stuff; 25 per cent. of clean white paper shavings; 10 per cent. of "broke." The mottling pulp, size and clay, were subsequently added according to requirements.

Cheaper grades were made by the addition of mechanical wood and a larger proportion of paper shavings. The cover papers were most successful in England and also found a good sale in America.

ARGENTINA OFFERS HER MILES OF PINE FORESTS FOR WOOD PULP.

The paper trade journals in every part of the world bear testimony to the increasing demand for paper of all kinds, but especially for cheap books and newspaper work. The "Bulletin Financier," of French Cochin China, is the latest to call attention to the matter, and this and other journals in the tropics are anxiously striving to add to the exports of their own colony, as well as to the trade of the mother country, by developing a cellulose and paper making material traffic between themselves and Europe. On all sides it is the same, cotton stalks, manila (Musas) and sisal (Agaves) waste, megasse, bamboo, and a dozen other bases for cellulose are each in turn experimented with, found to make excellent paper, and as such recommended to paper makers in Europe and America. None of these, however, have so far drawn attention away from the Scandinavian wood pulp and paper, which, though fast shrinking in possible outputs, still hold the "boards" and defy other competitors to do their worst.

For this reason Senor Esteban Ferrari, a large land owner in the Argentine, knowing the suitability of his "Araucaria imbricata" pines as a raw material for cellulose is offering a section of his property for sale, With the shrinkage going on in the European output, we feel that it is probable that some of our large paper makers and consumers may be glad to get into touch with Mr. Ferrari at Buenos Aires.

CONCRETE DAM, MILLER BROS. CO., LTD., GLEN MILLER, NEAR TRENTON, ONTARIO

A NEW concrete dam, recently completed on the Trent River, near Trenton, Ont., has some features that may be of interest both in the matter of design and difficulties encountered during its construction. Work was commenced in September of 1912, and the structure was completed early in July of this year, covering a total period of about 10 months. Owing to the mildness of the winter of 1912-13 in that locality the Trent River did not decline to its usual minimum flow for this period, and was, in fact, at flood stage several times during the winter months. This naturally caused difficulty which was unexpected, the most acute being in the last closure of the dam.

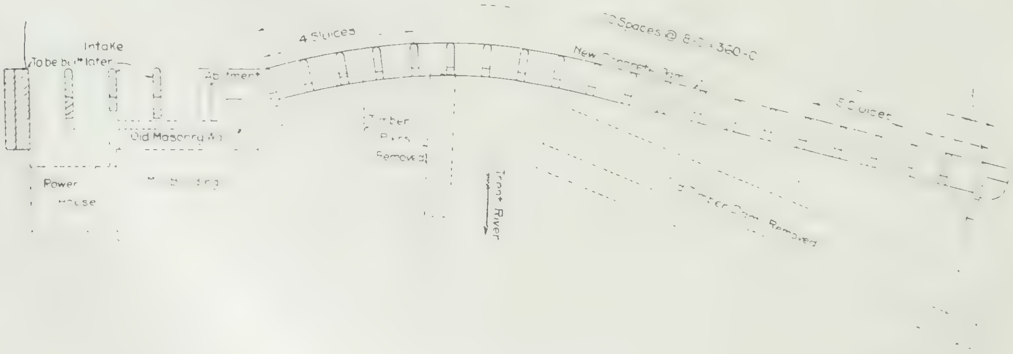
New Dam, Trent River

The new structure replaces an old wooden dam that had furnished power for running the board mill at the site. One of the construction problems was that of maintaining sufficient head during the construction of the new dam to keep the mill in continuous operation. This feature was successfully carried out, although it increased the cost of construction somewhat on account of the required extra height of coffer-dams required. The extra outlay was fully justified, however, as otherwise the prospective loss that the mill would have sustained, had it been obliged to either close down operations or to install steam machinery and equipment for the power, would have amounted to many times the sum.

The accompanying drawings and illustrations are self-explanatory and need little description of details. The total length of the dam over all as constructed is 425 feet. There are twenty piers, each of which are 3 feet 6 inches and and placed 18 feet between the centres. These piers are reinforced with corrugated steel bars which are also extended into the main still-way section. The design is such that stop-logs can be used between the piers to regulate the head as required.

Fig. 1 shows the general layout of the new dam and its position relative to the old structure.

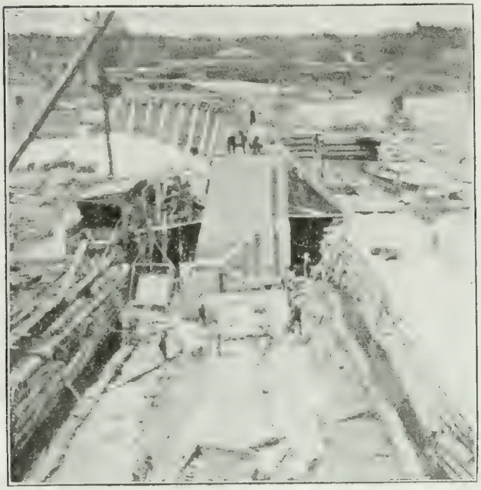
In order to give a greater latitude for operations and to increase the amount of water which may be safely carried over at plug stages there are four openings in the section of the dam adjacent to the mill and five at the opposite end, as the drawing illustrates. These openings have a crest whose elevation is 3 feet lower than that of the remainder of the still-way.



New Dam, Trent River

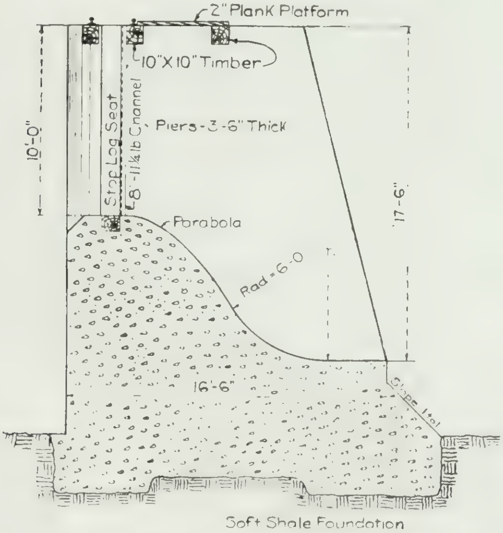
Fig. 2 shows a section of the dam and Fig. 3 gives a general view showing the first section of the proper dam completed. A section of the old wooden dam is shown in the foreground with 2 feet of flash boards in place, in order to maintain the operating head at the mill wheels.

Fig. 4 is a view looking west from the top of the eastern bank of the river and shows clearly inner cofferdam unwatered and excavation for the foundations of the dam in procedure.



New Dam, Trent River

The dam was designed and constructed for Miller Bros. Co., Limited, by the Ambursen Hydraulic Construction Co., of Canada, Limited. Mr. W. F. Farley, A.M. Am. Soc. C.E., was responsible for the details of design under the direction of Mr. G. R. Heckle, M.Am.Soc. C.E., of Montreal, the general manager of the company.



New Dam, Trent River

CHICOUTIMI PULP CO.

Bondholders Will Vote on Proposal to Exchange Bonds. Surplus in 1912 Was $85,000.

A meeting of the Chicoutimi Pulp Company bondholders has been called by the Royal Trust Company for November 3rd, on a written request signed by more than ten per cent. of the bondholders, for the purpsoe of considering a proposal to exchange the Thirty Year 5 per cent. First Mortgage Sinking Fund Gold Bonds into 6 per cent. Gold Bonds, the issue to be secured by a trust deed covering all the properties of the company. The Chicoutimi Pulp Company was incorporated in 1900 as a re-organiztion of a company of the same name, and manufactures ground-wood pulp. The properties consist of 360,000 acres of timber limits, water powers, etc., and two pulp mills located at Chicoutimi, Que. The plants have a capacity of 220 tons of pulp a day.

The bonded debt consists of $250,000 First Gold 5s, due July 1st, 1922, and $928,000 Refunding Sinking Fund Gold 5s due July 1st, 1940. On July 1st of each year the company is required to appropriate $84,575 for payment of accrued interest and for purchase or redemption of bonds for sinking fund. The authorized issue is $1,200,000 of which $22,000 as to December 31st, 1912, had been redeemed, and $250,000 reserved to retire the like amount of $250,000 5s due in 1922, The capital stock is $1,000,000 authorized and outstanding Dividends at the rate of 4 per cent. were paid in 1910, 6 per cent. in 1911 and ever since, payment being made quarterly.

For the year ended December 31st, 1912 the net profits after providing for working expenses, maintenance and repairs, administration, etc., amounted to $156,110; interest and discount brought in $19,295, and sale of electric current $12,000, making the total income, $97,897, including a balance of $10,492 as at December 31, 1911.

Fixed charges were: depreciation on river improvements, $7,508; interest on debentures $59,791; appropriated for sinking fund, $23,526; directors' fees, salaries and audit fees, $11,678; making a total of $102,503.

BLEACHABLE PRINTING INK.

As the carbon of ordinary printing inks does not bleach in using printed material for new paper a French firm has patented a special ink. The black pigment is forrosoferric oxide or a compound from tan-bark extracts acting on ferro sulphate, and this is incorporated with rosin, or mineral oil and rosin, or boiled linseed oil. In re-pulping the paper, the ink is bleached with an acid solution of a hypochlroite, chlorine gas, or hydrochloric or oxalic acid, the pulps being made perfectly white.

THE UTILIZATION OF FOREST PRODUCTS.

No other organic substance occurs in such abundance as wood, and few if any are more generally useful. About 150,000,000 tons of wood are still wasted annually in the United States. The Forest Products Laboratory which is maintained by the Forest Service in co-operation with the University of Wisconsin has for its purpose the development and promulgation of methods for securing a better utilization of the forest and its products, and its research work is directed to that end. The laboratory is splendidly equipped with apparatus of semicommercial size for work in timber physics, timber tests, wood preservation, woodpulp and paper and wood distillation and chemistry—From the presidential address of A. D. Little before the American Chemical Society.

THE DEVELOPMENT OF THE CHEMICAL PULP INDUSTRIES*

By DR. A. KLEIN

Chemical pulp from wood, grass, and straw is produced at the rate of about four million tons a year; 60 per cent. of this is made in Europe, 40 per cent. in America. No other part of the world produces it in quantity. The selling value of this output is about thirty millions sterling. From a quarter to one-half of the cost of manufacture, according to the country of production and the scale of the individual factories, goes in wages and salaries. Much wood is now used that was once thrown away or employed merely as fuel.

Chemical pulp is made from wood, straw, and grass in two ways. One consists in the use of acid sulphites, the other is resorting to caustic soda or sodium sulphate. The latter is the older process, and as has just been hinted, is of two kinds. The caustic soda process dates from the the patents of Watt and Burgess (1853), and of Houghton (1857). The sulphate process is due to Dahl (1884), and consists in using a mixed lye of sulphate, carbonate, sulphide, and hydrate of soda.

The sulphite process depends on treatment with bisulphite of lime or magnesia or a mixture of both, and was first employed by Tilghmann in 1866. Its commercial success is, however, the result of the work of Mitscherlich in 1874.

The chemical pulp industry is still in its infancy. It owes its rapid development, partly to the increased demand for paper, especially for printing and packing, and partly to the fact that many experiences derived from other and older industries can be utilised.

Cellulose is a general term. The fundamental type is cotton cellulose ($NC_6H_{10}O_5$). It is colourless, has a specific gravity of 1.54, and behaves to nitric or acetic acid like a trivalent alcohol. Nothing is known of its composition except that it is a ternary compound consisting of known percentages of carbon, hydrogen, and oxygen.

The form of cellulose most interesting to the paper-maker is that which occurs in wood, lignine, or ligno-cellulose. The only man who knows what this is is Wislicenus, who says lignine is a variable mixture of colloids separated out from the sap-flow, and consists of oxidisation products of pentosanes or hexosanes, absorbed partly reversibly and partly irrevocably by the cellulose. This highly satisfactory explanation requires no comment from us. It is now self-evident that when wood is boiled with lyes, it first loses the absorbed stuff, and then itself passes over into soluble compounds, or, as Klein thinks more probable, soluble compounpounds are formed by a partial hydrolytic breaking down of the lignine. Our readers can judge for themselves.

In deciding whether a given boiling process is or is not suitable, regard must be paid not only to dissolving the lignine out of the wood, but to the prevention of any dehydration or oxidisation of the soluble products made from the lignine and hereinbefore mentioned. Processes fulfilling only the first of these conditions—E.G., Pictet's (1882)—could therefore not gain a footing.

We know less about the composition of straw than we do about that of wood, although feeding animals on straw and hay makes their urine contain more hippuric acid. The silica in straw worries the theorists very much. It is not sure how it gets there, or how it is combined when there. A parge part of the silicon combination is soluble, the rest is amorphous. It is not impossible that silicic acid occurs in straw cells as a readily soluble amorphous modification, but it would also not be unthinkable that the silica is formed for the first time when the straw is burnt, and that the straw contains a silicon-compound in organic combination in replacement of carbon.

It is certain that the impurities of cellulose are extracted from straw more easily than from wood, and still more easily from esparto than from straw. It is more extraordinary that this is not accounted for by any theory.

The sulphite process is almost entirely restricted to the preparation of cellulose from spruce and fir, being used but rarely with aspen, poplar, and pine.

For theoretical reasons the sulphite process is excluded from woods containing much tannin. On practical grounds it is excluded from woods containing much rosin. The tannin oxidises and wastes the sulphurous acid, and the rosin is not thoroughly enough removed. The presence of much chlorophyll, too, is against the sulphite process, on account of the large quantity of chlorine wanted for the subsequent bleaching of the pulp. The directions of Mitscherlich, the first scientific investigator of the sulphite process, still hold good, except that higher temperatures are now used than he thought desirable, or than he tried, perhaps. Long empirical experience has taught the pulp maker to regulate his temperatures and boiling times, and the composition of his lyes, according to the sort of wood he has to deal with, and the sort of paper the pulp is intended for. The boilers are heated either by steam or by direct fire. Mitscherlich steamed the wood before boiling it, and the practice is still in vogue in amny factories, although as good results, or perhaps better, are got by pumping the air out of the boiler after the wood is in, and before the lye is admitted. The idea in both cases is, of course, to drive out the sap and ensure better penetration of the lye. Mitscherlich recommended horizontal boilers, although his first licensee used upright boilers, now almost always used, on account of the facility with which they are filled and emptied. The boilers are often of large dimensions. Klein saw one in America 56 feet high and 20 feet in diameter. Rotary boilers have met with little favour. The lining of the boilers is of great importance, to protect the iron from the acid lyes. Lead linings are largely replaced nowadays by cement linings made with lime and a paste of litharge and glycerine. Schenck recommended unlined boilers of a bronze containing 8 per cent. of tin and 92 per cent. of copper, but they were a total failure.

The difficulties in making lye are now solved, and the natural desire to boil the fibre as quickly as possible, that is, with plenty of the free acid, is fulfilled by securing the largest possible surface of contact, at the lowest possible temperature, between gas and liquid. This is effected by spraying the latter, or by passing large amounts of gas through small amounts of liquid.

When we turn to the subordinate processes of pulp-making, such as the preparation of the wood, sorting and breaking it up, and bleaching and drying of the finished pulp, we find that these, too, have made considerable progress. This is true, both of the sulphate and of the sulphite process, both of which have been improved by the healthy rivalry between them.

The first caustic soda pulp factory was started by Watt & Burgess in the late fifties in Pennsylvania. As already mentioned, they were the pioneers of the chemical pulp in dustry. They used upright boilers, in which caustic soda lye of 12 deg. B. was made to act on the wood for about six hours at a pressure of 4½ atmospheres, whereupon the pulp was blown out. Houghton (1857) used horizontal boilers, in which the wood chips were treated in wire baskets. His lye was 6 deg. to 7 deg. B. at 10 to 12 atmospheres, as he considered it better to use a weaker lye at higher pressures. The first German pulping factory, that of M. Dresel, used Houghton's process, except that the boilers were heated by direct firing instead of by steam-coils. Sinclair, about the same time, employed upright jacketed boilers with a false perforated bottom, to keep the wood from the outer wall. He employed a direct fire, like Dresel. A similar boiler heated, however, by steam admitted into the jacket is still used for esparto.

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*A paper read before the Aust. Hungarian Association of Pulp and Paper Chemists.

In 1871 Ungerer used several boilers on the circulation principle, but his system was a failure. To-day the process is usually worked with upright boilers revolving in a vertical plane on trunnions. These boilers are almost always made by welding the plates. The largest example at present in use holds 10,000 gallons. They would be made larger but for transport difficulties. At the same time, spherical boilers hold their ground for making straw pulp.

Difficulties always attend the sulphite process in respect of the waste lyes, because any recovery process as yet known of the useful substances therein contained costs more than their value. In the caustic soda processes the recuperation of the chemicals is of the first importance, as otherwise the methods cannot be made to pay, because the lye these processes require, containing as it does caustic soda, is much more expensive than the sulphite lyes. Hence the introduction of the Buff-Dunlop apparatus, often mistakenly called Shank's ,that of Lespermont, as well as that of Robert. At the same time, various processes for the economical evaporation of these waste lyes have been introduced, such as those of Leblanc, Porion, Enderlein, and that of Elliot and Russell. Most of these schemes depend on evaporation in a vacuum pan, the method being borrowed without material alteration from that employed in making refined sugar. None of these methods has proved successful.

The first real step in the recovery of caustic soda was made when a lye made from soda and lime—just what the old soap boilers used to make,—was used, instead of ready-made caustic, to replace the waste. A much more important step, however, was made when the caustic soda process was replaced by the sulphate process. The use of sodium sulphate was at first introduced for the purpose we have just been discussing. It led quite unexpectedly to the sulphate process, which consists in using a mixture of soda salts originally obtained by adding Glauber's salt to the caustic soda. J. B. Biron (U.S. patent 67,941) was the first to use sulphides, in 1867. In 1871 A.K. Eaton (U.S. patent 119,224) recommended sodium sulphite, as did Helbig in 1882 (D.R.P. 25,485).

As early as 1800, Matthias Koops experimented in making white paper from straw, and it appears that white straw paper was made in large quantities in 1849 at Springfield (Mass.). The present methods date, however, from Charles Mellier's invention of 1851. In 1901 W. Schacht proposed "sulphited alkaline lyes," and E. Nemethy proposed the use of magnesium bisulphite, while Dietz recommended a treatment with hydrofluoric acid, followed by boiling with bisulphite of lime.

As regards esparto pulp-making, which was introduced by T. Routledge in 1856, the old processes above mentioned are still used without any material alteration.

Of late years the sulphite pulp manufacture has made rapid progress, while the other methods were not so fortunate until the introduction of kraft paper.

The superior development of the sulphite pulp industry is largely due to the fact that the process gives a better yield, as the following average figures will show:—

	Percentage on weight of wood.
Cellulose in the wood	55
Cellulose obtained by the sulphite process	45 to 48
Cellulose obtained by the sulphate process	35 to 38
Cellulose obtained by the soda process	30 to 35

While by the sulphite process, applied to wood, about 15 per cent. of the cellulose present is lost, the loss is about 20 per cent. when the method is applied to straw. The loss with wood by the sulphate process is 30 per cent., and by the caustic soda process 35 per cent.

The weaker lyes of soda salts destroy less of the available cellulose, as is proved by laboratory experiments, and also by the treatment of esparto, where the loss is only 1 or 2 out of the 50 per cent. of cellulose originally present. On the other hand, the manufacture of kraft pulp has shown that shorter boiling time also conduces to a saving of cellulose. In this manufacture, the yield is about the same as in the sulphite process.

In the sulphite process itself, great strides have been made in respect of improving plant and methods, but the same cannot be said with regard to the chemical composition of the lyes. Much remains to be done in this direction. The cheapening of the product is solely due to engineering improvements. Again, practically no progress has been made in the treatment of the waste lyes. Even where excise conditions are favourable, their use for making alcohol has not had anything like the success expected The same may be said of their employment for manure, feeding cows, and tanning leather. The only possible method at present seems to be that they are poured into rivers big enough to dilute them sufficiently to prevent them from killing fish and creating a nuisance.

There is less difficulty with the waste lyes of the caustic soda processes. Evaporation provides an easy means of recovering much of the soda salts, if the necessary fuel is not too expensive. Martin Griffin says that in 1891 the New York and Pennsylvania Company recovered on the average 89.11 per cent. of the soda salts originally employed. This is the average throughout the year. In one of two months the recovery was 95 per cent. The loss may be divided into 2 to 3 per cent. during rinsing, ¾ to 1 per cent. during causticising and sedimentation, and 2 to 3 per cent. drawn by the draught up the chimney shaft.

The soda processes have the great advantage that they can be employed for all kinds of fibre, while the sulphite process is unsuitable for raw material containing much rosin, tannin, or chlorophyll. As already stated, however, in cases where the sulphite method is applicable, it gives the best yield of pulp. The pulp, too, wants no bleaching, or next to none, so that cheap papers can be made from it for colouring purposes. Further, other things being equal, sulphite-pulp paper is more elastic than soda-pulp paper.

The soda processes are better suited than the sulphite method for the preparation of half-cellulose, H. von Donnersmark's process having shown itself to be superior to Bergerhoff's

It has been observed in the sulphate process that the sulphides present contribute not a little to the result, and that the carbonate of soda is also helpful.

The new Yankee Paper machine of the Wayagamack Pulp and Paper Co. has been successfully installed and is now turning out paper at the rate of between ten and twelve tons a day. Demand for the production of this particular machine is good. It manufactures a superior grade of fancy wrapping papers which up to date have had to be imported. The mill as now being operated is practically running at full capacity.

SPANISH RIVER BOARD

Spanish River, not Lake Superior, would appear to be the company absorbed in the recent paper merger which none the less, retains the title of Spanish River. When the merger was first announced it was understood that Lake Superior would have three or four seats on the board of nine. Now the board is to be entirely of Lake Superior complexion with the exception of the managing director. The board as constituted, when the company was re-organized in 1910, thus practically passes out of existence. The terms of the merger recently completed would give the Lake Superior interests about 62 per cent. of the company's stock, while Lake Superior's control has been further strengthened by the fact that the recent financing through the sale of short-term notes was made through Lake Superior channels.

The statement issued to the shareholders of the Spanish River Paper and Pulp Company by the secretary, Mr. Thomas Gibson, intimates that it is proposed to submit to the shareholders' meeting on October 30th, the following names for election as directors for the ensuing year:

Messrs. W. E. Stavert, F. S. Szarvasy, W. K. Whigham, T. H. Watson, J. Frater Taylor, G. H. Mead and Thomas Gibson. The conclusion drawn from this is that the Lake Superior interests are in absolute control of the destinies of the Spanish River Company and that the Dominion Bond interests are to be eliminated from the directors.

The retiring directors will be Messrs. Garnet P. Grant, R. A. Lyon, R. L. Innes and H. E. Talbot.

One new name, that of G. H. Mead, goes on, indicating a reduction in the board by three.

SIR WILFRID ADVOCATES LOWER TARIFF.

(Special to Pulp and Paper Magazine.)

Ottawa, October 26.

The agitation for a reduction of the tariff, given voice to by Sir Wilfrid Laurier, leader of the Liberal Opposition, in recent election speeches, has been greeted with great interest in pulp and paper circles. Speaking at Joliette last week Sir Wilfrid stated that now that there was a free tariff with the United States, in twenty-five years all the paper and pulp mills of New England would be transferred to this side. He strongly advocated a general tariff reduction by Canada and it is thought certain that the Opposition will press this during the forthcoming session in which case the voice of the Canadian pulp and paper industry will likely be heard in protest.

TRADE DISPUTES LAST MONTH.

According to the record maintained in the Department of Labor there was continued improvement in September. There was a still further decrease in the number of strikes and lockouts in existence, and a favorable record is shown when a comparison is made with the same month of last year. There were altogether eleven trade disputes in existence throughout the country, as compared with eighteen last month and twenty-one during September, 1912. Only two of these occurred during September. Of those that were in existence before that time, the only one of importance as affecting industrial conditions to any great extent was that of coal miners on Vancouver Island, which remained unsettled at the end of the month, although there were not so many men out of work as a result of it as before. Upwards of 78,000 working days were lost through strikes during September, as compared with a loss of 109,530 during the preceding month.

MODERN PAPER MILL IN CHINA.

(Consul General George E. Anderson, Hongkong.)

A modern paper mill established by Chinese capitalists, including a number of Chinese in the United States, at Kongmun, a city on tide water in the Pearl River delta, has recently been put into operaton. The plant has been in course of erection for some time under the direction of a Japanese company. The machinery which has been installed is German, though the Japanese concern erecting the plant has marked all machines with its mark.

The mill has a capacity of about fifteen tons of paper per week. It is using rags and rice straw for its pulp, and the quality of the output so far is considered very satisfactory. The supply of rags is fair in quantity, while the supply of rice straw is practically without limit, the only question being that of price for the product, and the price at present is satisfactory. The new mill has the advantage of water transportation for both its raw materials and its output. It is somewhat significant that the establishment is under the management of a Chinese engineer trained in Japan.

AMERICAN WRITING PAPER COMPANY.

(Special to Pulp and Paper Magazine.)

Holyoke, Mass., Oct. 28, 1913.

The earnings of American Writing Paper of Holyoke, Mass., for the fiscal year to December 31, according to present promises will make the most unfavorable record since 1908. It does not seem likely that the balance above interest and sinking fund obligations will greatly exceed one per cent. for the $12,500,000 preferred stock, against 2.7 per cent. in 1912.

The poor results are due partly to higher cost of production found on an unexpired rise in raw materials. Another factor has been the shortage of water in the Connecticut this spring and summer. Dry weather reduced the Connecticut River to the lowest level in its history, and this has entailed enlarged use of the company's auxiliary steam plant. The net result has been an increase of nearly 30 per cent. in coal consumption during the last six months all of which is of course, just as much extra expense.

Under normal conditions the directors are not due to consider the next dividend until February. That dividend would be payable in April. The prospects are, however, that no dividend action will be taken at that time. If earnings pick up during the first half of 1914, there is a possibility that stockholders may get something in October, 1914, as the disposition of directors is to pay out as much to shareholders as can be done with reasonable conservatism.

It was just about a year ago at this time that American Writing Paper advanced prices 10 per cent. A further advance at this time would be justifiable, it is said, based on cost of production, but unfortunately trade conditions do not make such a step feasible at this juncture.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR WEEK ENDING SEPTEMBER 27th, 1913.

	Quantity
Bleached Chemical Dry	680 tons
Unbleached Chemical Dry	8,267 tons
Chemical Wet	170 tons
Mechanical Wet	7,742 tons
Mechanical Wet—	
Canada	1,611 tons
Newfoundland	750 tons

NEW PATENTS

All patents are specially compiled for the PULP & PAPER MAGAZINE. Those of United States are by Davis & Davis, Patent Attorneys, Washington, D.C. Full particulars with drawings may be had by addressing the Commissioner of Patents, Washington, D.C., enclosing five cents per patent. Canadian patent particlulars may be obtained from the Patent Office, Ottawa. In all cases give number of patent. We also carry brief descriptions of important English, French and German patents.

DEVICE FOR SHIPPING ROLLS OF PAPER.

JOHN C. MARTIN, of Wyncote, Pennsylvania. (Patentee)

U. S. Pat. No. 1,068,066.

Paper is usually shipped from the paper mills to the publishers in large rolls and these are usually covered with a paper wrapper. This practice entails waste and loss both in transit and in handling at destination and is therefore expensive and wasteful. The paper with which the rolls are wrapped is expensive and when the rolls are opened is salable only as waste and at a considerable loss. In transit and in handling, if a roll of paper is dropped or otherwise jarred, either sidewise or endwise, the layers of the roll split from the edges toward the center of the sheet of paper and this is true more especially of the outside layers. In consequence of this and of the accuracy and refinement of modern printing and feeding machinery the paper has to be unwound from the roll so as to take off the part having split edges and this part is wasted. Moreover, when a roll of paper having the usual paper cover is rolled along the floor it feathers at its edges, that is, the paper especially at the outer turns or layers, slips a little endwise of the roll thus making the edges of the turns out of alignment or feathered, and before the paper can be fed to modern printing and feeding machinery the roll has to be unwound until the feathered edges are removed, and the paper so unwound is wasted.

FIG.2.

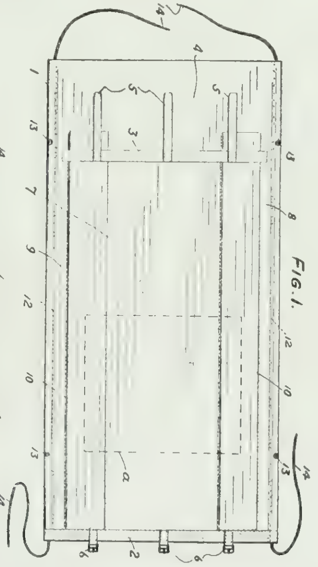


FIG.1.

The principal object of the present invention is to obviate these losses and to provide for shipping and handling rolls of paper in such a way that the outside paper covers are dispensed with and splitting and feathering of the paper at the ends of the roll are avoided even though the roll be subjected to such shocks and jars as are incidental to shipping and handling. According to the present invention these objects are attained by means of a canvas or like cover which may be capable of repeated re-use and which is provided with pads that cover the adjacent cylindrical and end surface parts of the roll and which constitute spaced projecting ribs.

FIG.3.

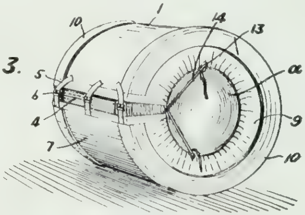


FIG.4.

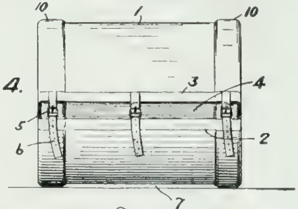
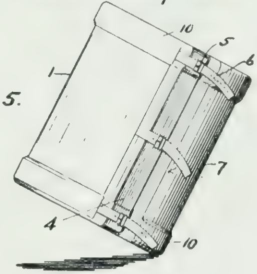


FIG.5.



Fr., 450,890. CHEM. FABRIC AUF ACTIEN, v. E. SCHERING and A. LOOSE. In the **acetylization of cellulose** and the production of new transformation products, the acetylization is effected in the presence of hydrazine or hydroxylamine-sulphate.

BRITISH TRADE NEWS

SPECIAL TO PULP & PAPER MAGAZINE

London, October 21, 1913.

The paper trade of the United Kingdom has had a distinguished honor conferred upon it this month. As already mentioned in the Pulp and Paper Magazine, Sir T. Vansittart Bowater, of the firm of W. V. Bowater & Sons, Ltd., wholesale and export paper merchants, 159 Queen Victoria Street, London, has been selected to fill the office of Lord Mayor of London for the year 1913-14, and next month he will be actually installed amidst the pomp and ceremonious functions that are carried out on such an occasion. Needless to say, the position of Lord Mayor of the captial of the British Empire, is no sinecure. A man cannot reach it by means of money or through the influence of friends; neither must he be lacking in education or personal character. The position is one of enormous responsibility and it is surrounded by enormous riches, as instanced by the fact that Sir Vansittart Bowater, when he takes the oath to fulfil the office he is called upon to serve in, is entitled to a diamond ring for his finger valued at $480 as a keepsake. Sir Vansittart is at present only going through ancient preliminaries prior to his reaching office. The last ceremony consisted of the retiring Lord Mayor, attended by his officers, civic dignitaries, members of the London Corporation—which include a few papermakers—attended a church service in their robes, after which liverymen of the City of London assembled at the Guildhall, where a platform was erected and the floor strewn with flowers and sweet smelling herbs according to custom. Officials all carried flowers in their hands and a burly Common Crier yelled out: "All you who are not liverymen depart this hall on pain of imprisonment." Then the crier asked the liverymen to submit the name of a suitable Lord Mayor for the consideration of the Court of Aldermen. Sir Thomas Vansittart Bowater was selected unanimously and his name was sent to the Aldermanic Court. Later the Recorder of London announced that Sir Vansittart had been chosen Lord Mayor elect to succeed Sir David Burnett, Bart. At night the officials, retiring and incoming, sat round the festive board in the Mansion House where the silver and gold plate used on these occasions reaches millions of dollars in value. Early next month there will be Lord Mayor's day here when the City will be roused and business stopped by the clashing of steel, the sounds of music, and the prancing of steeds. It is a day of pageants, military and otherwise.

* * *

We are very fortunate in England now that the dock, railway, and China Clay workers' strikes have fizzled out and all men have returned back to work. Manchester was the most seriously affected place in regard to dock strikes, because everything was held up and for sometime not a bale of paper or a bale of Canadian pulp could be landed, and paper makers in the northern area began to feel uneasy about their raw materials. The employers, however, well managed affairs and when matters were looking most gloomy the strike suddenly collapsed. Fortunately no pulp or even paper received the slightest damage by being kept on board ship while the strike was being settled. But the greatest surprise of all was the suddenness and the timely ending of the China Clay Workers' strike. It collapsed like a house built of a pack of cards. Unfortunately it lasted for ten weeks and during that period papermakers were left in a bad way for the want of clay as a filling or loading. The workers on leaving the pits, of course, caused a scarcity of the mineral and then there was a general rush on gypsum, mineral white, terra alba, etc., the producers of which put their prices 60 to 90 cents in advance on their old quotations. There is now a strong combination of Terra Alba producers here and for several years they say that this class of mineral has been sold at unremunerative prices and a shortage is now threatened, the result being that prices are increased and contracts are not pressed for. However, the position of affairs is somewhat relieved by the china clay workers returning to the pits and it is quite evident that no one will be more pleased than the American and Newfoundland papermakers. Paper men in the States have been neglected and, like their friends in England, had to fall back on other minerals for fillings. This china clay workers' strike has been one of the greatest curses that could fall upon any industry in England. All good employers must admire principles of trade unionism when properly carried out; but to drag out thousands of men from the pits (and not pay them) to dislocate at least three industries, and then lead the workers a misguided life for ten weeks buoyed up with hopes of increased pay and increased improvements in working conditions and hours, and to then return to work on the conditions against which they originally struck, is a game that is inconceivable and beyond the dreams of avarice. No wonder there is a great gulf between capital and Labor!

* * *

The Trade Board returns for September have been issued showing the position of the United Kingdom in the paper and pulp trades. The values are as follows:

Paper, etc.	Sept. 1912	Sept. 1913
Imports	£656,784	£641,364
Exports	340,955	295,217
Re-exports	17,469	38,226
	January to September	
Imports	£5,291,333	£5,691,607
Exports	2,593,236	2,798,448
Re-exports	128,138	224,099

The imports show that Newfoundland supplies decreased in the month from £96,615 in September 1912 to £51,644 in September, 1913, whilst the shipments from the States increased considerably. The exports of paper to Canada from British mills include writings, £1,275 (£1,440 in September 1912); Printings, £8,590 (£11,155 in September, 1912); unenumerated papers £749 (£1,150 in September, 1912). Except in writing papers, British shipments to the United States also fell off in September.

* * *

The imports of wood pulp during September were increased the following being particulars furnished by the Trade Board:

	1912 tons	1912 £	1913 tons	1913 £
September	88,086	405,291	99,257	440,347
Jan. to Sept.	627,211	2,976,780	695,113	3,216,318

Supplies from Norway of bleached chemical dry nearly doubled compared with September, 1912, whilst those from Russia, Sweden, Germany, etc., fell off considerably. Russian and Sweden supplies of unbleached chemical dry also fell off, but Norway and Germany shipments increased considerably. Mechanical wet shipments were as follows: Sweden 12,106 tons, £27,081; Norway 24,615 tons, £54,712; Canada 16,116 tons £35,048; other countries 9,296 tons, £21,664 It will be noticed that Canadian supplies have been increased; in September, 1912 they reached 5,415 tons valued at £10,267. Supplies from Labrador were small. Particulars and details of wood pulp supplies are always obtainable at the office of the Canadian Pulp and Paper Association by members.

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The Burnley Paper Works Co., Ltd., in Lancashire, have declared a dividend at the rate of 10 per cent., compared with 11¼ per cent for the preceding year. For several years the dividend was 10 per cent. and a bonus.

. . . .

Messrs. Boving, Ltd.,have received an order from Messrs. Mitsui & Co., for a complete papermaking plant to be erected in Odomari, Japan.

. . . .

The British Papermakers Association will hold the autumn general meeting in London on November 11. Last year they did not hold one.

. . . .

The proposal of shipowners to make the owners of cargoes share their responsibilities in the case of labor disputes and strikes which prevent the discharging of cargoes is meeting with determined opposition by papermakers and pulp men in London and Lancashire.

EXTRA PROVINCIAL COMPANIES.

Special to Pulp & Paper Magazine.)

Ottawa, Ont., October 25th.

The status of a large number of pulp and paper companies incorporated under the laws of one province but trading outside its boundaries in others is directly concerned in the decision handed down a week ago by the Supreme Court of Canada in the Companies Case, referred to it by the Parliament of Canada. The Court has decided for the provincial contention which in the main is that provincially incorporated companies have the power and capacity to do business outside the provinces which incorporate them. The decision is of more or less direct local interest because of the fact that when the case was argued the E. B. Eddy Company, of Hull, was chosen as a case in point of a company with its mills in one province but trading in others and and was referred to all through the argument.

Had the Court found for the Dominion contention instead of the provincial one more or less dislocation of business would have been caused inasmuch as companies whose capital aggregates many millions of dollars would have been doing business illegally since, while provincially incorporated, they were trading all over Canada and in other countries as well. The judgment was not unanimous, two judges siding with the Dominion and on this account will probably be appealed by the Justice Department.

NO CARTAGE.

Special to Pulp & Paper Magazine.

Ottawa, October 25th.

The Canadian railway companies have now finally and definitely declined to continue the cartage service to and from railway stations after the end of the year and the Railway Commission, which intervened on a former occasion, has also declined further to interfere in the matter. Canadian shippers, therefore, are faced by the problem, which will be an imminent one on December 31, of making their own arrangements with the cartage companies. Efforts along this line are now being made by the boards of trade of various cities but no matter how successful they are there is no doubt that cartage is going to be a more expensive matter next year.

CANADIAN GOVERNMENT ON SECTION 2

(Special to Pulp & Paper Magazine.)

Ottawa, October 26th.

Though it will receive notice of the United States Treasury decision that the new tariff law repeals the woodpulp and print paper section of the Canadian Reciprocity act of 1911 and though it will in all probability communicate with the American authorities when asked to do so by the Canadian paper trade the government here will take no action on its own initiative in regard to the new ruling, which has not been received with joy by pulp and paper men on this side of the line.

As to the effect the ruling will have the Trade and Commerce Department is not altogether definite. A copy of the regulations regarding the application of a countervailing duty on printing paper over 2½ cents per pound, issued by Mr. C. S. Hamlin, assistant secretary of the U. S. Treasury in connection with his ruling on the subject makes it clear, however, that a countervailing duty is to be collected on all such papers from Quebec and British Columbia. Under the Canadian Reciprocity act, which Mr. Hamlin says is repealed, there was a countervailing duty only on such parts of shipments as were manufactured from Crown land wood but under the new tariff law as interpreted all paper, whether from freehold or Crown land pulpwood, is subject to the countervailing duty. The reason why Ontario, which also imposes an export duty, has been exempted is not easy to see unless the Treasury Department does not wish to contradict a previous judgment to the effect that such paper exported by the Spanish River Company, which has a special contract with the Ontario Government in no way differing from those made with the Quebec Government by some paper companies operating in that province, was free.

EDDY'S NEW GROUND WOOD MILL.

(Special to Pulp & Paper Magazine.)

Ottawa, October 26th.

The new groundwood mill of the E. B. Eddy Company, of Hull, is practically completed and operations have been commenced on a small scale. The mill, which is said to be perhaps the most up-to-date as well as one of the largest in Canada, is at present turning out between 8 and 9 tons on each stone. There are at present only 3 stones running for which the company has to buy power. As already announced extensive alterations are being made to power plant of the Eddy company as a result of which it will be able to supply all the energy needed by its plant but these are not yet completed. By January next, however, the mill will be running at about fifty per cent., capacity and when work on the power plant has been concluded it will operate at full. The total capacity of the mill will be between 110 and 120 tons per day.

OTTAWA LUMBER CO. FIRE.

Special to Pulp & Paper Magazine.)

Ottawa, October 26th.

Another big lumber fire occurred in the city about a week ago, the fifth this summer and fall, when the mill and lumber piles of the Greater Ottawa Lumber Company were burned to the ground. Some $30,000 worth of lumber of different kinds was destroyed while the mill, which was also valued at $30,000, was burned, Messrs. E. P. McGrath, Albert McGowan, T. J. McManus and P. J. Dawson were the members of the firm. The loss was covered by insurance and the mill will be rebuilt.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine)

Among the passengers on board the Lusitania on her last trip to Europe, was Stuart D. Lansing, manager of the Bagley & Sewall Company, one of the largest paper machinery manufacturing concerns in the World at Watertown, N.Y. As his company has a large contract in Northern Europe it is believed that he is making the trip in the interest of same.

* * * *

The annual meeting and banquet of the Empire State Forest Products Association will be held in New York City on November 15. President Frank L. Moore, of Watertown is now preparing a list of speakers at the banquet and as he is well posted on forestry matters, he will undoubtedly select some good speakers who will discourse on forestry matters in a brilliant manner.

* * * *

The steamer Camilla May Page arrived at Potrland, Me., during the past fortnight, with a heavy cargo of wood pulp from Bridgewater, N.S., for the International Paper Company. On account of very heavy weather encountered, ten days were required to make the trip, which ordinarily is done in five. During the same week the International also received a heavy shipment at the same port on the Norwegian Steamer Aagot.

* * * *

H. D. Eddy, treasurer of the White Pigeon plants of the Eddy Paper Co., at Three Rivers, Mich., has purchased, together with several other paper manufacturers of Kalamazoo, the paper mill at Norris, Ill. The plant is in a rather run down condition, but such was the case with the White Pigeon mill when it was purchased by the Eddy Co. It is therefore thought that Mr. Eddy will make many improvements and will put the plant on a sound footing.

* * * *

George La Monte, the originator and manufacturer of National Safety paper, which is now widely used among the American banks to protect bank checks and other documents, died in his home at Bound Brook, N.J., on October 20. Mr. Lamont was born at Charlotteville, N.Y. In 1857 he graduated from Union College. A year later he married Rebecca Hern, who with two sons and two daughters survive him. In 1871 he originated the safety paper and has been manufacturing same at Nutley, N.J., ever since.

* * *

The bag factory of the Crown Columbia Paper Company, at Comas, Washington, which has been increased during the past three months to 1,500,000 per day, is still about 40,000,000 behind in its orders. There are also a great many orders on hand for envelopes and which the company has just started to manufacture. As showing the enormous business done in the bag factory, it may be interesting to know that 24 tons of paper are required every day in this mill.

* * *

During a Directors' meeting several weeks ago at the Plant of the Volney Paper Co., Fulton, N.Y., fire broke out in the old rags stored away for future use, but due to the prompt arrival of the fire department, and the able assistance given by the officers and directors the blaze was confined to the rear roof of the factory and only entailed a damage of $400.

* * * *

The Connecticut River at Bellow's Falls is rapidly filling with pulp wood for the International Paper Company. The logs latest to arrive are a lot of about 2,500 cords of shoot and small spruce timber which were purchased from the Connecticut Valley Lumber Company. The International has recently built four new slides on the New Hampshire side of the river for drawing out the logs by electrical power, which, heretofore has been done by steam.

* * * *

For the purposes of conducting a general wholesale and retail paper business, the Charleston Paper and Stationery Co., with a capital of $50,000 was incorporated at Charleston, W. Va., on Oct. 18, R. P. Andrews, president of the R. P. Andrews Paper Co., of Washington, D.C., has been chosen to head the new Company, J. T. Marsh is secretary-treasurer, and M. P. Shawkey, vice president. The new store will be located at 241 Capital Street shortly with a stock of paper valued at close on to $50,000.

* * * *

Sydney M. Jones, of Bangor, Me., son of Hon. H. M. Jones, formerly at the head of the Katahdin Pulp and Paper Company and now manager of the Partington Pulp and Paper Company, Ltd., of St. John, N.B., has accepted a position with the Partington Company, in charge of the engineering and timberland deaprtment. He will have his headquarters at St. John. Mr. Jones is a graduate of the engineering department of the University of Maine in the class of 1911, and since graduation has been interested in several lumber operations in this State.

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The Chase & Leavitt Company, of Portland, Me., have received a cablegram confirming the reported ending of the strike at Fowey, England, which has paralyzed the china clay business at that port for the last four months. The final statement came Monday, October 6. The loading of steamers with China clay will immediately follow, the first to come to Portland being the Brantford, which was due at Fowey, October 10, and was to take on a cargo for Portland and Boston.

* * * *

A writ demanding the appearances of the officers of the Pulp Wood Supply Co., of Appleton, Wis., in court in the Province of Ontario was served upon the company several weeks ago. According to the writ: the Appleton company is made a party in defense in a case involving several thousand cords of Canadian pulp wood, the title of which is the Marks-Clavet-Dobie Company against the Russell Timber Company, both of Canada, and the Appleton Pulpwood Supply Company. The plaintiff started the action in the high court of Ontario, October 6, last, and hopes to recover 2,798 cords of spruce wood, which it is alleged by the plaintiff, were wrongfully removed by the defendants from the township of Crooks in the Thunder Bay district of Canada. The plaintiff avers that the spruce wood was sold by the

Russell Company to the Appleton Company after the plaintiff by reason of a certain Indenture had become the rightful and legal holder of the wood. The complaint alleges that both the Russell and the Appleton companies were aware of the existence of the indenture and the claim being made by the plaintiff company, the document having been made November 12, 1912. The pulp wood in question, according to the complaint was not removed until the following January. Demand is being made for damages in the sum of $5,000, the costs of the action, and an injunction from the court restraining the defendant company from further dealings in the wood in question together with the prompt delivery of 2,798 cords of pulp wood to them. The case will be tried at Port Arthur, Canada. The Appleton company is given the period of fifteen days in which to file its answer.

* * *

The main section of the American Chemical Society held its annual banquet in Bangor on Oct. 18, at which were present representatives from the chemical laboratories of nearly every pulp and paper mill in the State. The program was devoted almost entirely to the pulp and paper industry of Maine, as the majority of the members of the section are paper mill chemists. A. G. Dargin, M.S. instructor in the chemical department at the University of Maine who has been preparing for the pulp and paper course at the college by getting actual experience at the mill of the Eastern Manufacturing Company, read a paper on the "Equipment for the Study of Pulp." J. N. Stephenson, M. S., also of the chemical department, spoke on "Experimental Paper Plants." Martin Griffin, of the Oxford Paper Company, of Rumford, had a very instructive paper on the "Commercial Valuation of Wood for the Paper industry' C. F. Mabery, Ph.D., of the Case School of Applied Science, Clevleand, Ohio, the first chemist to make calcium carbide, delivered an address on "A Half Century of American Chemistry."

LONDON WEEKLY LETTER.

London, Sept. 27, 1913.

There is really no business doing in chemical pulps at the moment, and as will be seen from the accompanying communication the Scandinavians seem satisfied that they are going to have a good time. I have this morning received from the Secretary of Skandinaviska Cellusforeningen, Sweden, an official letter sent from the head office in Stockholm on Sept. 23rd, and it says:

> "The Swedish and Norwegian cellulose makers held a joint meeting in Stockholm on September 15th. Statistics to September 1st were produced and other statistics showed that the stocks in the two countries were as regards percentage about the same as on September 1st, 1912, but were considerably smaller than at the same date in 1911 and 1910. It was also reported that the unsold quantity of this year's output was very small and that the statistical situation in this respect is about the same as on September 1st last year, reckoned on percentage of each year's production."

Although this information is official, it is not improbable that the percentage of pulp unsold is larger than here represented. The object of publishing the information is, of course, obvious.

It is the first time the Norwegians and Swedes have met in Stockholm this year and it is also the first time the Association has felt it necessary to send such a communication to the press.

Personally I have an idea it indicates that certain Swedish Cellulose mills are uneasy and anxious to remove from buyers' minds the idea which is spreading that there is more sulphite in the market than the makers will admit.

There is, however, no indication of any weakness on the part of sellers, in fact the best Swedish mills still refuse to accept important business except on their own terms and are extremely independent at that.

On the Continent of Europe and at British mills there are signs of declining trade and mechanical pulp can not be given away at the moment. Some British news mills have not enough business to keep them running full time.

As regards the Cellulose market it remains almost stagnant and there is nothing doing worth comment. The Scandinavian Trade Journals continue to predict enormous American demands when the air is cleared after the Tariff revision.

BEAVER BOARD NEW PLANT.

Thirty carloads of machinery, most of it the parts of one machine, have gone forward for the equipping of the Beaver Board Companies' fifth and latest plant at Thorold, Ont. The other four plants are at Buffalo, N.Y., where the administration offices are located, at Beaver Falls, N.Y., at Roanoke Rapids, N.C., and at Ottawa, the headquarters of Canadian Beaver Board activities. The Companies also have a branch in England and distributing points throughout the world.

The sod for the Thorold plant was turned April last; this was an auspicious occasion, not only for the Beaver Companies but for Thorold which realised the civic importance of opening a plant thus near the city's jurisdiction. The assemblage was addressed by a member of the Thorold Board of Trade and other prominent Canadians. The Thorold plant will be completed April 1914.

Seven years ago the wood fibre industry was in its earliest stages. Thirty-five years had just succeeded in firmly establishing certain principles concerning the manipulation of pure wood fibre. Upon these facts was built and has grown a successful industry for the manufacture of a building material that takes the place of lath, plaster and wall paper in all types of buildings, old or new. The Beaver Board industry is one of significance in the building world today.

The Building of the Thorold plant marks an important step in the groth ef nhe Beaver Board industry. This plant which will cost some $500,000, consists of one main building to house the enormous machine recently shipped—the main building is 350′ x 74′ with an addition of 150′ x 150′ at the South end and of 150′ x 74′ at the North End. To operate the plant arrangements have been made for 2,600 H.P. electricity for thirty years from the Ontario Power Company—eventually the plant will require about 5,000 H.P.

The new Welland Canal is to pass the Beaver Companies property—The Grand Trunk railroad has a branch running to the Companies' warehouses. In this way arrangements have been made to bring in logs from the forest of Northern Canada and to carry away the finished product, Beaver Board.

Although Ottawa will remain the chief Canadian office for Beaver Board activities across the border, it is planned that the Thorold plant will bear much of the burden of production entailed by the increased demand for Beaver Board among the provinces. The capacity output of the Thorold plant will be 80 tons per day.

Bonds amounting to $254,400 of the insolvent East Canada Pulp and Paper Company, at present deposited with La Banque Nationale, at Montreal, will remain tied up as the result of a seizure just taken out by Badel Freres, bankers and brokers, of Paris, France. The bonds became the property of certain French investors at the time of the flotation of the company. They were subsequently transferred to Canadian buyers and were transmitted here through the National Bank. Badel Freres now lay claim to them as security in certain proceedings pending over the flotation of the company.

PULP AND PAPER NEWS

The E. B. Eddy Co. have secured the contract for the new Montreal Daily Mail for one year.

James Home is now manager and secretary of the William Cauldwell Paper Co., Montreal, succeeding A. E. Hawker, who resigned some time ago.

The Kinleith Paper Mills, St. Catharines, are erecting a large three story stock house of re-inforced concrete which will be used for the storage of raw material.

Canadian Allis-Chalmers, Limited, have issued this week, their new Mather & Platt Turbine Pump Catalogue of which they have the exclusive rights of manufacture in Canada.

The pulpwood shipments on the T. & N. O., during the month of September were higher than usual, totalling 82 cars. The wood was shipped to Sturgeon Falls and Thorold, Ont.

The Province of British Columbia intends to increase the royalty on their timber cut from crown lands, which is at present 50 cents. It will probably be 75 cents, or one dollar.

F. L. Ratcliff of the Ratcliff Paper Co., Toronto, has returned from a trip through the province of Quebec. He visited a number of mills and found them looking forward to increased business.

Hon. Robert Rogers will also take early steps to have plans prepared for a new printing bureau. This work was urged by the Lake-Ducharme Commission. A new site has not been selected yet.

Robert Davies, President of the Don Valley Paper Co., who was stricken with paralysis a few weeks ago, is making steady progress toward recovery but will not be able to be around for a few weeks yet.

The Belgo-Canadian Pulp and Paper Company, at Shawinigan Falls, Quebec, is progressing with the sulphite plant to be followed in 1914 by one paper machine and by a second paper machine in 1915.

H. B. Donovan, sales manager of the Canada Paper Co., Toronto, was in Brooklyn, N. Y., recently attending the funeral of his mother, who passed away after a few weeks illness at the age of seventy-four years.

The Ontario Financial Co. was recently incorporated in British Columbia with a capital of $250,000. The head office of the company is at Vancouver and the concern is empowered to manufacture and deal in timber, lumber, pulp mills, etc.

The meeting of the second mortgage Twenty-year Bond Holders of the Ocean Falls Co., Ltd., has been called at Salisbury House, London, England, for the 18th of November. The 6% First Mortgage Bond Holders will meet the same day at the same place.

R. D. Warren, who for many years has been a publisher in Georgetown, has been appointed manager of the Standard Publishing Co., Toronto and entered upon his duties. Previous to his departure from Georgetown, he was tendered a banquet by the citizens.

A cargo of sulphite pulp has been delivered to the Ontario Paper Co., Thorold from Drammen, Norway, coming by the steamer Glenfoyle. This makes Thorold an ocean port, being the first cargo of European products to be unloaded on the Welland Canal.

William McMaster, who is Vice President of the Jacques Cartier Pulp and Paper Co., has been appointed a Director of the Bank of Montreal, taking the seat of the late James Ross. Mr. McMaster is also the President and Director of several other companies.

Edward Partington Pulp & Paper Co., Ltd., St. John, N. B., have almost completed a new siding from Fairville, N.B. to their mill. Pulp has had formerly to be hauled about a half mile over a very bad road. This saving will amount to a large item in the year.

The J. M. Voith Co., Inc., have just supplied two double twin Turbines of 7,500 H.P. each with governors, for the Ottawa and Hull Power and Manufacturing Co. Also a 12,000 H.P. Turbine with governor for the Kaministiquia Power Company, Fort William, Ontario.

Smart-Woods, Limited, of Montreal, have taken out a provincial license to do business in Ontario and are empowered to expend capital up to the sum of four hundred thousand dollars. Thomas Mitchell, of Toronto, has been appointed attorney for the firm in Ontario.

H. B. Hart, of the British America Wax Paper Co., Toronto, has returned from an extended business trip to the West. He reports that the movement in favor of wrapped bread is making steady progress among the bakers and the demand for the sealed product is increasing.

Acting upon a report received from Chief Architect Ewart, which stated that congested conditions in the Government printing bureau made the building dangerous for the employees, the Secretary of State has given instructions to secure additional premises for storage purposes.

A new low point was reached by Wayagamack common the shares selling at 22. In a circular sent to their clients, Messrs. Greenshields & Co. state that for the first six months' operations, the company earned at the rate of approximately 5 per cent. on the common after payment of bond interest.

A new paper box factory is being established in Stratford, Ontario, by George Whitesides of Toronto who has secured a building, purchased machinery and will begin operations in a few weeks. He will supply the various knitting companies with paper boxes and expects to do a big business.

A new book on the "Conservation of Water," by Walter E. McCulloh, C.E., has been issued by the Yale University Press, 135 Elm Street, New Haven, Conn. Price, $2.15 postpaid. This has been provided under the "Lyman Lecture Series," and is of immense value to all interested in water powers in any way.

Hon. George H. Perley, of Ottawa, who is a director of the Riordon Pulp and Paper Co., and wife, have gone on a holiday trip to England. Mr. Perley, who has put in a busy summer as acting Minister in various departemnts and also as acting Premier during the absence of Mr. Borden, feels the need of a vacation.

An engineer has been sent out to the West by Hon. Dr. Roche, Minister of the Interior, who will conduct an investigation into the small water powers. The regulations regarding the leasing of these powers were recently amended in a manner calculated to facilitate their development and the work will be encouraged in every way.

The net earnings of the Riordon Pulp and Paper Co. of Montreal, for the first eight months of the present year, after deducting depreciation, etc., have been sufficient to cover the whole years' charges for debenture, interest amounting to $90,000 and preference dividends totalling $70,000.

Gummed Papers, Limited, with head offices in Georgetown, Ontario, has been granted a charter. The capital of the new company is $50,000. A building is being erected at Brampton. Among the men behind the new enterprise, are Capt. R. R. Barber and E. R. Colbert of Georgetown.

P. P. Westbye of Peterboro, who has invented the New Westbye Screen, has obtained the contract for supplying this new screen to the Donnacona Paper Co., the Beaver Companies of Thorold and the Campbell Lumber Co., Weymouth. The new screen is giving great satisfaction and promises to be a good success.

Mr. J. R. Booth, the veteran pulp and paper manufacturer of Ottawa, who received serious injuries some weeks ago by being struck by a falling timber at his plant, is progressing rapidly towards complete recovery. Mr. Booth's friends hope that in spite of his advanced age he will in time be as well as before the accident.

The Donnacona Paper Co., Donnacona, Quebec, have received their four Ground Wood Wet Machines of extra heavy design, equipped with knives for cutting stock from the top press roll, four Ground Wood Thickeners, in battery design and a Pneumatic Sulphite Thickener from the Sherbrooke Machinery Co., Ltd., Sherbrooke, Que.

The Minnesota & Ontario Power Co., Fort Frances, Ont., are installing new "Improved" Centrifugal Screens in their Fort Frances Mills, manufactured by the Sherbrooke Machinery Co., Ltd., Sherbrooke, Que. This same firm has the complete contract for the Wet Machines; Screens and Save-Alls for the Abitibi Pulp & Paper Co., Ltd.

Work on the new warehouse of the Victoria Paper and Twine Co., at 439 Wellington Street West, Toronto, is going ahead rapidly and the walls are up to the second story. The company expect to move into their new premises at the beginning of the year and will have one of the finest warehouses in the Dominion, in appointments and facilities.

Erik Sjovall, representing Stromsnas Brucks Aktiebolag, Stromsnas, Bruk, Sweden, was calling upon the paper trade in Montreal and Toronto during the past few days. Other visitors to the trade were C. A. Henderson of Charles Morgan and Co., London, England, and E. C. Betz, secretary treasurer of the Munroe Binder Board Co., Munroe, Mich.

Mr. S. Chas. Phillips is on his way to Canada to study the new developments in American and Canadian paper industry. The month of November will be given to this country visiting the various mills etc. Mr. Phillips, description of the parts of the world he visits are always most interesting as they appear in the "Paper Maker and British Paper Trade Journal."

It is interesting to note that the federal government intends to appoint at an early date a Commission to inquire into the economic possibilities of the Georgian Bay Canal. There will be three members on the Commission. The government will thoroughly look into the commercial and economic features of the undertaking before coming to any definite decision regarding calling for any contracts.

The strikers at St. John, N. B., in the sawmills, have returned to work after holding out for three months. They were unable to maintain the strike as the lumbermen found trade conditions a little slow and shut down the mills. As the season advanced, there was no sign of giving in on the part of the mill owners, so that it was only a matter of time before it was necessary to call off the strike.

A new company known as the Dominion Tactile Press, has been granted a charter by the Ontario government. The head office is in Toronto and the corporation is without share capital. The company is empowered to print and publish books, magazines and papers for the use of the blind, and to establish, maintain and conduct a free library for the blind. The provisional directors are Arthur Gate, George Joseph Gate and Charles Elliott, all of Toronto.

I. H. Weldon, President of the St. Lawrence Paper Mills, Toronto, has returned from a ten days' partridge hunting trip to Lake Nipissing and the French River. In company with Mrs. Weldon and an Indian guide, he travelled some two hundred miles by canoe and had rare good luck. S. F. Duncan, of the St. Lawrence Paper Mills also spent a few days recently on a duck shooting expedition to Lake St. Francis and managed to bag some fine specimens.

The Riordon Pulp and Paper Company has started cooking in the third of their new twelve and half ton digesters at the Hawkesbury mill, this bringing the capacity up to 125 tons per day. The fourth new digester is expected to commence cooking in two weeks' time. This will give the Hawkesbury mill a capacity of 140 tons per day of unbleached sulphite fibre. The company's Merritton mill, which has been undergoing repairs for a few weeks, is again operating and turning out 25 to 30 tons per day.

Splendid progress has been made this season on the new Dominion Forestry Farm, a few miles to the north of this city. The area of the farm is 320 acres, 160 of which are now ready for sending. The necessary buildings are well advanced, while a large amount of planting has already been accomplished. The land is laid out very artistically, and ere very long will be one of the beauty spots of the district, in addition to providing a source of supply for all manner of suitable trees and shrubs which are in such demand.

The St. Lawrence Paper Mills Co. and the Interlake Tissue Mills believe in combining the beautiful with the utilitarian and have made arrangements to improve the surroundings of their various mills. An elaborate floral scheme has been decided upon. The walls of the various buildings at Mille Roches, Thorold, Merritton, and Georgetown will be covered with ivy and cedar hedges will be planted around all grass plots, while flower beds will be set out and every effort put forth to have the environs as pleasant and attractive as possible.

The directors of the British Canadian Lumber Corporation, Limited, have found that the $1,500,000 originally provided for the mills and working capital were insufficient, and have therefore authorized a bond issue of $3,500,000, which bonds are to be deposited with a trust company as security for a note issue for the term of three years, amounting to $3,000,000. These notes are to be in denominations of $500 or multiple thereof, and are redeemable at $107, and carry interest at the rate of eight per cent. per annum, payable half-yearly.

The first shipment of news print by boat from Ontario Paper Co., at Thorold, was made last week when the steamer Bennington of the Rutland Transportation Company, whose line of vessels trade from Chicago to Ogdensburg and pass through the Welland Canal weekly, took aboard a cargo of some twelve hundred tons which was consigned direct to Chicago. Pulpwood comes to Thorold regularly by boat and the paper made is shipped direct to Chicago by water. Thorold is the nearest point on the Welland Canal to Niagara Falls where the electric power for the Ontario Paper Co. is generated

A sad double drowning accident occurred on the Nepigon River last month when two fire rangers, were descending the swift current of the stream in a canoe. The craft capsized and they met death. The men were Walter Burns and J. D. Copley. Another member of the party, G. Harper, managed to reach the shore by swimming. Burns, who was a son of John Burns of Toronto, had been a fire ranger since 1898 and had only recently been appointed a deputy by Hon. W. H. Hearst, Ontario Minister of Lands, Forests and Mines.

The Gull Lake Lumber Co., Limited, was recently granted a provincial charter in Ontario with headquarters in Gravenhurst. The share capital is $100,000 divided into one thousand shares of one hundred dollars each, of which five hundred shall be cumulative preference shares. The company is empowered to construct, build and operate saw mills and to engage in the manufacture of pulp and paper or any product in which pulp and paper may be used. The incorporators are Thomas Hubert Wilson, Wm. H. Ford, Frederick L. Tate, Wm. R. Bird and Alex L. Davis, all of Toronto.

P. W. Whitmer, F. T. Chandler and W. F. Fuqua, of Philadelphia, recently paid a visit of inspection to the property of the St. Lawrence Pulp and Paper Corporation and were well pleased with the result of their trip and the progress that is being made with the construction. The new saw mill will be in operation in the spring and work on the one hundred ton sulphite mill, which the Corporation are erecting at an outlay of one million dollars, is well under way. About eight miles of railway have been graded and four miles are in operation. The company own over 600 square miles of timber limits in Gaspe and Bonaventure which are valued at ten million dollars.

The contract for section two of the new Welland Ship canal has been awarded to Bouldry, Yerburg & Hutchinson, a well known English firm with a Canadian branch established at St. Catherines. The plans call for the removal of some 6,500,000 cubic feet of material, and the figure is about five and half million dollars. Work is now proceeding on sections one and three of the canal. The Confederation Contracting Co. has been granted a federal charter and the provisional directors include M. J. O'Brien of Renfrew, Hugh Doheny, Quinton and Robinson of Toronto and Montreal. The new company is capitalized at two million dollars and will operate as sub-contractors on section three of the canal.

Addressing a large audience near his birthplace in Quebec on Saturday, Sir Wilfrid Laurier expressed his gratitude for the openings made by the new Democratic tariff in the matter of wood pulp and print paper. "Within twenty-five years," he predicted, "all the New England manufacturers of pulp and paper will transfer their works to the valley crossed by the Transcontinental." In this railway, which the speaker's government initiated and which will run from coast to coast, Sir Wilfrid expressed the highest confidence. It was opening up a land, the wealth of which, he declared, was stupendous. What has been thought to be nothing better than arid plain was found to be agricultural land, a land of incalculable water powers and immense pulp forests.

Investigations, which have recently been made concerning the rainfall in the districts tributary to the Trent canal, indicate that this ten million dollar undertaking may be seriously affected through lack of water. for the locks unless a careful forestry policy is adopted to conserve and increase, if possible, the present rainfall. In order to do this the federal government may be compelled to take control of certain forest areas and prevent their denudation. Some reforesting may also have to be done along the route of the canal, the last section of which is now being built, the contract having been awarded a few weeks ago. When the waterway is complete, it will connect Georgian Bay, with the Bay of Quinte and Lake Ontario via the Murray canal.

Hugh Watson of the Watson-Foster Co., Limited, who passed away recently in Montreal, left benefactions of $140,000 to hospital and charitable and religious institutions in Montreal and vicinity. During his life time, Mr. Watson devoted much time and money to benevolences but, so quietly was this undertaken, that his work was little known to the public and the nature of his bequests, therefore, came as a matter of surprise. Mr. Watson was born in Glasgow, in 1839, and came to Canada when twenty-one years old, making his home on Montreal. He went into business with his brother in the importation of wall paper, etc., and in 1897 began the manufacture of it under the present name of Watson-Foster Co.

Toronto Paper Manufacturing Co. stock touched the new low point of 68 on the Toronto stock exchange last week, and a price below what it sold at before the dividend was increased from five to eight per cent. At the time the dividend was advanced so unexpectedly and the stock jumped so spectacularly, experts predicted that it would not sell where an eight per cent. dividend payer ought to sell. It is said that the dividend may be reduced. Sixty-eight is very cheap for the stock of an eight per cent. basis. In view of the fact that the capacity of the sulphite plant will shortly be doubled and, owing to the installation of a loft whereby ledger and high grade loft dried papers will soon be placed on the market, it is expected that the stock will regain a new high point at an early date.

The plans for the new Board Mill at Hawkesbury of the Hawkesbury Board & Paper Mills are nearing completion and the organization is rapidly being worked out. The final directors have not as yet been appointed, but will include prominent pulp and paper men in this country and some financial men from Montreal. The promoters of this company state that it is not their plan to displace any of the board made at present in Canada, or cut prices in any way, but they expect to confine themselves to the shortage in the present lines, and replace the imports from the United States, chiefly in specialties. There is a place in the Canadian market at the present time for such a mill, if operated carefully and along those lines. They expect to have two machines which will manufacture boards from the very lightest to the heaviest weights with about 100 tons a day capacity. They will use large quantities of Riordon Sulphite from Hawkesbury.

LAKE SUPERIOR PAPER CO.

Considerable interest attaches to the annual statement of the Lake Superior Paper Co. for the year ending June 30, owing to the fact that this company's operations are now linked with the Spanish River Co., which has been shown to be in none too good shape. The company's mills have not all been in operation during the year. The capacity of the plant's four paper machines is now about 200 tons per day, which is about 60,000 per annum. However, the third and fourth machines were only got into operation in January and March respectively, and the total output for the year was 34,213 tons. The profits available for interest charges and dividends amounted to $184,178, which consequently were at a rate of $5.40 per ton. It is worth noting that in the prospectus issued by this company in connection with its bond issue in 1911 profits were estimated at the rate of $11.46 per ton. It is likely that further economies will be affected when the plant has been working at capacity rate for some time but it seems unfortunate that the estimate made in connection with the bond issue should have been so far from the mark.

Canadian Markets

The market conditions show some changes since last report. There is a fair demand for newsprint although there is still a surplus quantity for export by reason of the added tonnage that has come on the scene within the last few months. Prices are fairly firm, however. The export business in news is growing rapidly and this year the volume done across the border will be nearly four times that done two years ago. In 1911 Canada exported to the United States about 54,000 tons of newsprint which in 1912 jumped to 84,000 tons, while the first eight months of 1913 the exports have been 124,000 or at the rate of 190,000 for the year. Some authorities predict that, when the returns are all compiled, the tonnage will run over 200,000 for the twelve months. There is no doubt that the elimination of the duty on newsprint paper will continue to give added impetus to the trade done by Canadian mills over the line.

Book and writing plants are fairly well employed but the machines are not running to capacity and orders are smaller than a year ago and not so numerous while shipments are prompt. In manilla, fibres and grey browns trade is only moderate and some mills have reduced their prices by ten per cent. in the hope of reviving business, There is considerable price cutting going on and paper bag discounts continue to be increased.

In kraft paper the business, so far as volume is concerned appears to be favorable. The Canadian plants are not able to market their product across the border since the new tariff went into effect as, under clause two of the reciprocity act, all papers up to four cents. in value, went in free if made from wood off unrestricted lands. By the new condition of affairs the value limit is two and half cents and, of course, kraft cannot be manufactured cheap enough to enjoy exemption. What effect the barrier will have on kraft papers remain to be seen. There is no doubt that the Canadian market will be carefully cultivated and mills will go after as much foreign business as possible. The demand for ground wood pulp is good and considerable has been moving owing to the low water on the other side which has increased the number of inquiries. The sulphite situation remains unchanged and prices continue to rule firm, good business doing. In the rag and paper stock markets things are livening up in some lines. Mixed papers are in better demand as well as straw board cuttings. Canadian buyers of rag stock are not going in too heavy while American buyers are asking for quotations. A very good fall business is looked for in many rag and paper stock items.

Quotations, f.o.b. Toronto are:

Paper.

News (rolls) $42 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $3.75 to $4.50.
Book paper (ton lots) No. 3, 4c. to 4.50.
Book paper (carload) No. 2, 4.25c.
Book paper (ton lots) No. 2, 4.50c to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $2.75 to $3.75.
Manila B., $2.40 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.00 to $3.75.
Kraft, 3.75 to 4.75

Pulp.

Ground wood (at mill), $16 to $17
Ground wood, $22 to $24.50, delivered in United States.
Sulphite (unbleached), $43 to $45, delivered in Canada.
Sulphite (unbleached), $43 to $46, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $58 to $62, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft white shavings, $1.75.
No. 1 Mixed shavings, 60c.
White blanks, $1.00 to $1.03.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 80c. to 85c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.15 to $1.20.
No. 1 print manilas, 60c. to 62½c.
Folded news, 50c.
Over issues, 52½c.
No. 1 clean mixed paper, 45c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.30 to $1.32½.
No. 1 white shirt cuttings, $5¾.
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.75.
Black linings, $1.75.
News light flannelettes, $4.60 to $4.75.
Ordinary satinets, 75c.
Flock, 90c,
Tailor rags, 65c. to 67½c.

Quotations, f.o.b. Montreal, are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book, carload lots, No. 1, 5¼c. to 6¼c.
Book, broken lots, No. 1, 6¼c. to 6¾c.
Book, carload lots, No. 2, 4¾c.
Book, broken lots, No. 2, 5c. to 5½c.
Book, carload lots, No. 3, 4¼c. to 4½c
Book, broken lots, No. 3, 4¼c. to 4¾c.
Manila B., 3¼c. to 3½c.

Pulp.

Sulphite, Easy Bleaching, f.o.b. Montreal, $44 to $45 per ton.
News quality, f.o.b. Montreal, $42 to $43 per ton.

Bleached Sulphite, f.o.b. Montreal, $55 to $60 per ton.
Kraft Pulp, $3.60 to $4.00 f.o.b. Montreal.
Ground Wood, No. 1, $15 to $16.00 f.o.b. Montreal.
Ground Wood, No. 2, $22 to $24, delivered United States.

Wrappings.

Fibre, 4c. to 4¼c
No. 1 manila, 3½c. to 4½c.
No. 2 manila, 3¾c. to 4c.
Kraft, 4c. to 4¾c.

New York Markets

(Special to Pulp & Paper Magazine).

New York, N.Y., October 28, 1913.

An increased production of mechanically ground wood pulp is reported from most producing centres because of the improved water conditions due to the heavy rains of the past fortnight. The market is, at least, temporarily relieved, and better deliveries on contracts are anticipated by consumers generally. The fact still remains, however, that ground wood is still very scarce and with the fast approaching winter the outlook for anything like a normal supply appears very dubious. Many inquiries are being received by producers, and though the majority of them are pretty well supplied with stocks and are holding their prices on an exceptionally firm basis; some few are inclined to make slight concessions in order to turn their products into needed ready cash.

Quietness as far as new business is concerned, continues to predominate in this market. The majority of consumers appear to have sufficient stocks on hand to run them for some months to come, and prefer to await developments of the new tariff before trying themselves up with contracts for the next few years. This is quietly reflecting very keen competition among local dealers, and spot lots have been reported resold during the past week at unheard of prices. Dealers, however, refuse to name any prices but those herewith quoted, but a large consumer this week showed your correspondent a bill he had just received for unbleached domestic sulphite based on 1.95c. per pound. Another stated most emphatically that he was offered a car of Kraft pulp at 1.87½c. per pound on the dock. Importers are firm in their belief that prices next year will be strictly adhered to, and they predict in some instances a further advance.

Paper stocks ,especially old waste papers, are moving in a very strong way. Consumers are drawing steadily on their outstanding contracts and many additional inquiries are reported. In some cases packers are taxed in filling their orders and shipments are going forward, bale by bale, as fast as they are collected. This does not apply to any particular grade, but is general. Rag stocks are also enjoying a steady business with prices being strongly maintained. Roofing stocks are particularly active and values here are beginning their upward climb.

Pulp.

Ground Wood, No. 1, $19 to $23 per ton, f.o.b. mill.
Ground Wood, No. 2, $17 to $19 per ton, f.o.b. mill.
Unbleached Sulphite, domestic, 2c. to 2¼c. per pound, delivered.
Unbleached Sulphite, foreign, ex duty, 1.90c. to 2¼c. per pound, en dock, N.Y.
Bleached Sulphite, domestic, 2.90c. to 3c. per pound, delivered.
Bleached Sulphite, foreign, ex duty, 2.70c. to 2.95c. per pound, en dock, N.Y.
Easy Bleaching Sulphite, foreign, ex duty, 2.15c. to 2.25c. per pound, en dock, N.Y.
Unbleached Sulphate, foreign, ex duty, 1.90c. to 2.10c. per pound, en dock, N.Y.
Bleached Sulphate, foreign, ex duty, 2c. to 2.80c. per pound, en dock, N.Y.
Kraft Pulp, foreign, ex duty, 2c. to 2.10c. per pound, en dock, N.Y.
Soda Pulp, domestic, 2.15c. to 2.25c. per pound, delivered.

Paper.

Very few complaints have been heard in the local market regarding business for the month of October, and most of the local paper interests seem well pleased with the showing made. Of course, some jobbing houses were not so enthusiastic about the general results as others, but, as a whole, it was considered that the demand was growing larger. Despite any temporary loss that may be incurred incident to the coming elections, the opinion is voiced that November's returns will surely eclipse those of October. The prediction is based on the prospects of a good holiday trade, which will be under way shortly in all retail lines. Preparations have been going on for some time among all classes of consumers for the comlng season, and this seems a safe assurance of a big increase in the consumption of paper and a greater activity in the local paper market. The noted activity has not been confined to any special branch of the industry, as there is not a dissenting report from any mill as to the good volume of business now doing and in sight for the immediate future. With a consistent persistency this statement of the conditions at the mills is being spread throughout the trade, and to verify it one has only to visit the mills to see that there is no exaggeration attached to it. The recent rains have been of much benefit, especially in the northern section of New York and New England, and have greatly relieved the one big source of worry. While prices are being firmly maintained, with no immediate sign of an increase, the demands of the future will solely determine whether possible advances are to be made or not. Newsprint is about the ouly weak grade in the list. Consumers are marketing for their supplies and manufacturers in their greed to cover their outputs are competing severely. In consequence several nice contracts have been placed it is said, though unconfirmed by the principal manufacturers, of late. Market quotations, however, are unchanged, and are repeated with the other lines, as follows:

News, rolls, transient business, $1.00 to $2.10 f.o.b. mill.
News, rolls, contract renewals, $1.95 to $2.05 f.o.b. mill.
News, sheet, $2.10 to $2.15 f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20 f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90 f.o.b. mill.
Writing paper, superfine, 11c. to 13c., del. east of Miss. Riv.
Writing paper, extra fine, 10½c., del. est of Miss. Riv.
Writing paper, No. 1., fine, 9c., del. east of Miss. River.
Writing paper, No. 2, fine, 8c., del. east of Miss. River.
Writing paper, engine sized, 4½c. to 8c., del. east of Mississippi River.
Bond paper, 6c. to 24c. delivered east of Miss. River.
Ledger paper, 8c. to 30c., delivered east of Miss. River
Linen paper, 7c. to 18c., delivered east of Miss. River.
Manila jute, 4¾c. to 5¼c., delivered.
Manila wood, $2.40 to $3.00, delivered.
Kraft, No. 1, $3.65 to $4.00, f.o.b. mill.
Kraft, No. 2, $3.25 to $3.50, f.o.b., mill.
Screenings, 1¾c. to 2⅛c., delivered.
Boxboards, news, $30 to $33 per ton, delivered.
Boxboards, chip. $28 to $31 per ton, delivered.
Boxboards, straw, $29 to $31 per ton, delivered.
Wood pulp board, $42 to $45 per ton, delivered.
Tissue, white. cylinder, 45c. to 47½c. delivered.
Tissue, fourdrinier, 47½c. to 52½c. delivered.
Tissue, jute manila, 52½c. to 55c., delivered.

British Markets

(Special to Pulp and Paper Magazine.)

London, October 22, 1913.

The paper manufacturers of the United Kingdom have not, what one might call, a "brisky time." There is a good volume of business passing, but not enough to keep all mills working full capacity. Mill men would like to see larger orders, they say, and if these were forthcoming in the present circumstances there would be nothing to complain of. The demand for fine writings and fine art papers continues good, whilst newsprint is having a good outlet. Packings and wrappings are keenly sought and there is not much difficulty in finding consumers for them. Nearly all the mills have got over their annual stock-taking and manufacturers are beginning to settle down for the winter's work. Complaints are being made against the high railway rates which are helping to take away part of the small margin of profit that is now made on papers, and, added to this, there is often a difficulty in trying to enforce an advance in prices to cover extra rise in the railway rates. Generally speaking the cost of the production in papers in the United Kingdom is yearly getting higher and higher and this factor is telling against a good many mills. Fine printings are enjoying a good patronage in the publishing and book trades, and there is every likelihood of the demand increasing as soon as the bookbinders settle their differences with the masters and end the strike they are engaged in.

* * * *

Sulphite and sulphate are moving slowly and paper makers are somewhat slow in covering next year's deliveries. They are compalining of the prices and the Scandinavians are doing all in their power to try and get the English buyers into the markets. British mills, however, are well stocked for some time to come, and for the past two months shipments on contracts have been pouring in largely and steady. The markets, therefore, must show better encouragement for English buyers. Dealings in small parcels are general for prompt delivery. Another month may see a change in the present state of affairs and in all probability there will then be a rush for mill requirements. Prices are about as follows, c.i.f. London, Manchester, Preston, etc.:

Sulphite bleached	$52.80	to	$57.60
Sulphite easy bleached (1st qual.	46.00	to	47.00
Sulphite News or strong quality	39.40	to	41.00
Soda unbleached (1st quality)	39.80	to	41.00
Soda unbleached (strong)	38.00	to	39.00
Soda Kraft	38.40	to	39.00

* * * *

K. Nystroom, of Sweden, has issued the following statement in London as well as in his own country, which English importers are taking for what it is worth:—"I beg to inform you that according to reports from all mills concerned, the increase in the production of both sulphite ands ulphate in Sweden next year, 1914, will only be about 37,000 tons. To this I beg to add that the increase in the production last year, 1912, was 77,740 tons, and as the stocks at the mills decreased by 25,990 tons the same year the real increase in the consumption was 103,730 tons during last year, 1912.'

* * *

Very little is being done in Mechanical pulps. Prices are still on the weak side and there is a large amount remaining on hand to be cleared out. A balance between supply and consumption should be near at hand. Water powers in Scandinavia are reported to be not in a very satisfactory condition. Prices are about as follows, c.i.f. London, Manchester, Preston, etc.

Pine, 50%, moist unwrapped (prompt)	$17.98	to	$9.90
Pine, dry (prompt)	20.40	to	20.60

About $1 extra is charged for forward delivery.

There is an extending enquiry for Esparto. Prices are getting to a higher level and sellers are very firm and showing some reserve towards the expanding enquiry. During September 15,111 tons of Esparto, valued at £52,111 were imported into the British market, compared with 5,585 tons, valued at £30,002 in September, 1912. The value and quantities for the first nine months of the year also show a considerable increase.

* * *

Trade in rags, wastepapers and other similar paper stock is active and prices are unchanged. During the past four week 431 tons of rgas have reached the English market from Canada.

* * * *

The China Clay industry is once more in full swing the strike having ended somewhat suddenly on the 8th September. There is naturally a big demand to replenish stocks at home and abroad. Mineral white and gypsum and other fillings have advanced 24 cents per ton for lower grades and 36 cents for the finest grades. Rosin is in buyers favour and quiet.

* * * *

The chemical markets of late are dull with very little of interest to report on. Manufacturers of Bleaching Powder report free sales for next year for the home trade, buyers being readily willing to contract on this year's basis, viz.: $25.00 in soft wood casks. Caustic soda so far is unchanged, but for distant markets there is some competition to meet at $24 for 76 and 77%. Salt cake is $9½ amd soda ash, carbonated, $29.80 to $30. The tariff reductions in the United States have not yet been felt in the British chemical markets.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR WEEK ENDING OCTOBER 4th, 1913.

	Quantity
Bleached Chemical Dry	35 tons
Unbleached Chemical Dry	9,609 tons
Chemical Wet	1,255 tons
Mechanical Wet	10,796 tons

Mechanical Wet:	
Canada.	1,654 tons
Newfoundland	772 tons

U. S. PRINT IMPORTS, 1913.

Importations of Printing Paper Suitable for Books and Newspaper into the United States.

January to August, 1912 (Canada).	83,373,041
January to August, 1913 (Canada).	249,076,863
January, 1913.	24,662,307
February, 1913	25,338,071
March, 1913	30,635,635
April, 1913.	33,183,681
May, 1913..	32,330,619
June, 1913	34,906,711
July, 1913.	32,318,113
August, 1913.	35,401,726
For month of August, 1913:	
Belgium	39,593
England	197,121
France	8,276
Scotland	92,452
Germany	131,208
Italy	728
Netherlands	93,103
Norway	48,800
Sweden	336,899
Total	lbs. 36,347,906

U. S. PULP IMPORTS, 1913.

Importations of Wood Pulp into the United States.

	Number of short tons imported. Mechanically ground	Unbleached chemical	Bleached chemical.
ALL COUNTRIES:			
January to August, 1912	108,011	175,833	52,217
January to August, 1913	84,341	190,089	53,367
January, 1913	13,985	25,696	5,222
February, 1913	8,586	32,459	9,870
March, 1913	9,042	23,984	6,963
April 1913	10,429	20,787	7,251
May, 1913	9,945	23,861	9,120
June, 1913	12,794	20,780	4,785
July, 1913	8,763	24,836	6,697
August, 1913	10,797	17,686	3,459
Imports by Countries, for month of August, 1913:			
Canada	10,522	5,037	357
Austria-Hungary	....	564	84
England		28	
Germany	....	2,409	1,188
Mexico			
Roumania			
Finland	....	336	
Russia in Europe	....		
Norway	11	1,928	1,693
Sweden	264	7,384	137

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FERMENTATION OF SAWDUST.

A Forestry Branch Bulletin says:—A large English company has recently commenced the commercially successful production of acetone and fusel oil from sawdust by a simple process of fermentation. From these two products isoprene can be derived, which latter can be changed into rubber, merely by allowing it to lie in contact with a small quantity of the metal sodium. This synthetical rubber vulcanizes readily and compares favourably with the natural product in resilence, durability and price.

Acetone is used in the manufacture of cordite, and fusel oil is used in the manufacture of artificial leather cloth. Previously it was chiefly obtained as a bye-product in the manufacture of whisky, brandy and vodka, but by this new process it can now be extracted much more cheaply, making possible a large profit. It is calculated that these bye-products of sawdust are worth almost $400 a ton. As it takes only ten tons of sawdust to yield a ton of these valuable constituents, the resultant profit is obvious.

In Europe with its densely populated regions contiguous to the forests, the elimination of wood-waste is an economic essentiality, and hence methods have been evolved which, in some cases, utilize even the leaves and roots of trees. While this is not essential in America at present, it is desirable to reduce the waste which takes place in the different processes of transforming the standing timber into finsihed products which amounts to something like fifty per cent of the total volume of the tree. To this end, the Candian Government is establishing a fully equipped Wood Products Laboratory at McGill University in charge of Mr. A. M. McIntyre, B.A., B.Sc., under whose direction experiments will be conducted to discover new uses for common Canadian trees and for the enormous quantities of sawdust and other forms of waste wood which now represent a money loss to the country of millions of dollars annually.

TENDERS FOR PULPWOOD LIMIT

TENDERS will be received by the undersigned up to and including Wednesday, the 31st of December next for the right to cut pulpwood on a certain area situated on the Metagami River in the District of Temiskaming.

Tenderers shall state the amount they are prepared to pay as bonus in addition to the Crown dues of 40c. per cord for Spruce, and 20c. per cord for other pulpwoods, or such other rates as may from time to time be fixed by the Lieutenant Governor in Council, for the right to operate a pulp mill and a paper mill on or near the area referred to.

Such tenderer shall be required to erect a mill or mills on or near the territory and to manufacture the wood into pulp and paper in the Province of Ontario, the paper mill to be erected when directed by the Minister of Lands, Forests and Mines.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for ten per cent of the amount of their tender, to be forfeited in the event of their not entering into an agreement to carry out the conditions, etc.

The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested, etc., apply to the undersigned.

W. H. HEARST,
Minister of Lands, Forests and Mines.

Toronto, Ontario, September 17th, 1913.

LUMBERMEN AND FORESTRY.

Lumbermen are sometimes accused of hostility or at least indifference towards scientific forestry, but this, as everyone knows who is acquainted with the facts, is not the case. At a recent meeting of the North Idaho Forestry Association, composed of lumbermen and timber owners, the sum of $58,000 was placed to the University of Idaho for a new forestry building and equipment. Officials of the University declare that sixty per cent. of the timber now wasted in manufacture may be saved, and it is to devise methods to show this that the new building is required. The equipment includes a saw-mill plant for the use of students in learning the practical side of the industry. This is in harmony with the action of the Massachusetts Lumber Manufacturers' Association in supporting a chair of applied forestry and practical lumbering in the Yale University Forest School, for which the Association has voted $100,000.

CORK PAPER AND ITS USES.

Enormous quantities of cork are used annually for making tips on cigarettes. For this purpose the cork is converted into very thin sheets, which constitute what is known as cork paper, says the SCIENTIFIC AMERICAN. These sheets are exceedingly thin and come in the market 4¼ inches in width and 6, 7, 8, 9, and 10 inches in length. A package of about 250 sheets is scarcely an inch thick. Practically all the cork paper that comes to this country is entered through the New York Custom House, and is valued (including 30 per cent. duty) at about 300,000 dols. annually. It is estimated that approximately one-half million dollars worth of cork is converted into cork paper every year, and almost all of this is used for making tips on cigarettes.

The thin cork is pasted on long sheets of paper, which are passed between rollers and automatically covered with paste, while girls with deft fingers lay on the cork and smooth it down as the paper passes along. After this the sheets are passed through the cutting machines, in which they are divided into eight strips one-half inch wide and wound on reels for use in the automatic cigarette tippers. Each of these machines has a capacity of 10,000 sheets of cork paper. The total number of sheets used in the world is about 100,000,000, or about a quarter billion square feet. The cigarette tipping machines have a capacity of about 60,000 cigarettes daily. The cost of the finished tips to the cigarette manufacturer is from 9 to 20 cents a thousand.

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MESSAGE FROM THE LORD MAYOR OF LONDON TO CANADA.

Sir Thomas Vansittart Bowater, head of W. V. Bowater & Sons, Ltd., papermakers and wholesale paper agents, (London) who was installed Lord Mayor of the City of London on November 9, has sent the following kindly message to the PULP & PAPER MAGAZINE:—"Send my kind regards and best wishes to all the pulp and paper men in Canada." His lordship also wished the Canadian Pulp and Paper Association every success in its future career. We are sure all pulp and paper men in Canada wish Sir Vansittart Bowater a happy and pleasant year in the Mayoralty chair.

DUTIES.

MUCH talk is heard on all sides in Canada at the present time as to the reduction of duties. The views expressed by papers and magazines in this country usually depend on their political affiliations or other such reason. Little has been heard of the reduction on paper and paper products, but occasionally someone bursts into print on this phase as well. We do not need any protection inCanada on mechanical pulp or news print paper. All of these branches of our business are in good shape to stand on their feet alone, and any tariff changes which may be put on will have no effect whatever on any mills manufacturing here. The only question which might arise would be some local conditions through the middle west on news print paper which might be supplied to a small extent by some of the western paper mills. This, however, hardly seems to be a possibility now that the Powell River Co. ships news to Calgary with the Lake Superior, Spanish River and the Fort Frances covering Winnipeg and the middle west. On the higher grades of paper, however, it is absurd to say that we do not need encouragement for a great many years yet to get that branch of our industry on a satisfactory and substantial basis. Fine papers are a new thing in this country and the development of these lines has been exceptionally difficult with a limited market and strong competition from old established firms to the south and especially in England. We do not need the protection increased, but we strenuously insist that what protection is afforded at the present time should be rigorously maintained for a number of years on all varieties of high grade papers and specialties.

Another question has arisen from a number of sources in connection with the duty on coal. It is strongly urged by all well thinking men in this country that the duties on coal should be taken off. At the present time, anthracite is, of course, free while American bituminous is taxed 53c. per ton with 14c. on bituminous slack. The Nova Scotia coals will find an unlimited market in New England and do not need any protection on their industry as they are fully established and on a good paying basis with a nice margin of profit. Then, too, coal is a peculiar commodity in the fact that we should not be over anxious to use up our resources too rapidly. Coal is one of the few things which is a good thing to buy outside the country. In the year 1912, we purchased from the United States 9,000,000 tons of bituminous and also a small amount from the United Kingdom. These duties fall chiefly upon the railways and the Ontario manufacturers, but we find continually in Eastern Canada as well foreign coal coming in on account of the shortage. On the St. Lawrence and in

Nova Scotia, American coal is becoming quite a factor. In 1879, when the N.P. was adopted, Nova Scotia accepted a tax on American flour in the interests of the Ontario miller on condition that American coal should be taxed for her benefit. At first both anthracite and bituminous had to pay duty, but later anthracite was made free and later too bituminous was made free when the importer intended to convert it into coke for smelting. Now it is advocated on all well informed sides that the duties on this flour should be taken off. In the November issue of the "Canadian Miller & Cerealist," we find the following:

"As in all matters effecting trade and tariffs, opinions as to what is best, differ very widely and this particular case is no exception to the general rule. We are inclined to the belief that Canadian millers have nothing to fear from the removal of the present duties on wheat and flour. Canada grows the finest milling wheat in the world. We have ample water power, natural gas and as competent and capable milling men as are to be found south of the border. It is reasonable to assume that flour mills located alongside their raw material can manufacture more cheaply than mills which are forced to haul their raw products a considerable distance and then ship out their flour. A parallel case is found in connection with the pulp and paper industry. In this matter, Canada possessed the pulp areas, abundant water supply and a plentiful supply of workmen. American paper men found that their Canadian competitors could manufacture more cheaply than they were able to do owing to the proximity of the Canadian mills to the raw material. They found it to be much cheaper to ship out the finished product than to pay freight rates on bulky pulpwood brought from Quebec forests to paper mills in the United States. Another reason why Canadian millers have nothing to fear is found in the fact that to-day they successfully compete with American millers in foreign markets. They meet their American competitors in South Africa, the West Indies, in Newfoundland and other places and that they are successful is shown by the fact that Canadian exports of flour into these countries are continually on the increase and are largely replacing American flour. There is also the fact that the United States is becoming more and more of an importing country and exports less year by year. We venture the prediction that in a short time the energy, foresight and enterprise of the Canadian millers will enable them to establish branches throughout the West and that they will more than hold their own with their American competitors if the duties on wheat and flour be removed. The time will eventually come when, instead of a great string of elevators stretching from Winnipeg to the Rockies we will have flour mills, where Canadian wheat will be ground into flour and the bran, shorts and other by-products will be utilized for feeding purposes by the Canadian farmers. Canadian millers need not fear the removal of the duties."

Now that the duty must be removed from wheat and flour which, under the present United States Act must be done to give our wheat and flour admission into their markets, we do not need the trade which was entered into between the millers and the coal producers. All kinds of coal coming into Canada should be absolutely free no matter from what point of view we regard the situation.

Y. M. C. A. AND PAPER MILLS.

AS NOTICED elsewhere in this issue, the Hollingsworth & Whitney Company and the Burgess Sulphite Fibre Company are interesting themselves in Y. M. C. A. work in connection with their mill employees. This is a healthy sign to see such large and representative firms taking a stand in favor of looking after the well-being of their men from every point of view. It offers also a suggestion that has not been acted on in Canada to any extent. A number of our mills, such as Laurentide and Powell River, have organized clubs which have for their aims the developing of the social and recreation side. There is no doubt that anything which omits the spiritual side is incomplete and the best good can come from efforts in this direction, only when every phase of a man's life is taken into consideration. The Y. M. C. A. is most efficiently organized in Canada and, besides this, we have other organizations which could assist to a large extent in efforts made in this way. The features of any such club should consist of reading room, pool room, bowling alleys, game room, educational classes, bible classes, gymnasiums baths and possibly dormitories. In some cases, a hospital or moving picture hall might also be included. The initial expenditure in these cases is often fairly large figure, but in no case where anything of this kind has been attempted have they regretted the expenditure. Railways have accepted the spirit of cooperation very extensively in Canada and United States. Both the C. P. R. and G. T. R. have built a number of fine Y. M. C. A. buildings. A few months ago the C. P. R. built and equipped a large and modern Y. M. C. A. building at North Bay which they turned over to the Y. M. C. A. to run for the benefit of their men. In no case has such a step been regretted. From the lower motives only,—the financial return —anything in this line is a good proposition. When one, however, also considers the higher and altruistic motives which should govern everyone, there is no doubt that every mill could do something toward making the lives of their staff and men, pleasant and profitable from the mental, social and spiritual sides.

SELLING DIRECT.

ONE OF the most timely and interesting questions before the paper trade to-day is the selling by mills direct to the consumer instead of coming through a broker or jobber. The result has been that in news and book practically all the business has gone direct to the mills while the smattering orders only have been booked by the jobber. Kimberly Clark Company, one of the largest mills in the West has recently changed its policy in this regard with the result that the effect on the industry will be far reaching. Jobbers and their organs are taking a firm stand against this change. They point out that a mill cannot afford to equip for direct selling and the jobbing business as well. They also say that it will be impossible to sell direct and properly co-operate with the jobbers, such a policy simply being an irritation. It is claimed that many mills quote the printer the same price they quote the jobber and that the present day prices for book paper, for example, are very much below what the advanced cost of production would warrant. When mills are short, for example, near Chicago the representatives hurry to that metropolis, which has a good market, and take orders regardless of price. The result is a decline on the market, creating a condition eventually worse for the mill. Selling direct by mills will tend to lower prices and the burden of such policies will be shouldered by the mills doing business by this method. The conclusion, we think, should be that some lines of paper should be sold direct and other lines, which are retailed in small quantities, should be sold by jobbers.

THE PLACE IN BUSINESS FOR TECHNICALLY TRAINED MEN.

HARDLY a week passes that we do not see in journals catering to the business and manufacturing world some utterances on this subject of technically trained men in business. It has, however, only been very recently that any attention was devoted or directed to this subject. The business man of a few years ago would "pooh pooh" the idea of technical men as managers or holders of administrative positions. At the present time, however, we find, in spite of this opposition, which has now turned to co-operation, the powers of observation and adaptation of the technical man are being rapidly appreciated and each year we see their scope extending as specialists, superintendents, managers and executors. The dependence of present day business methods upon technical training is most striking and has not stopped at the factory. The words conservation and efficiency were not in the merchants' vocabulary in the olden days when business cared for itself. Materials were bought from hand to mouth, the cost was a rough guess, the price was fixed, the standard of the product was variable, but the merchant knew he could sell at a profit. That time, however, has passed so that the successful manufacturer or seller of merchandise to-day, to insure himself of a profit in any staple industry, must follow scientific methods. He has to meet competitors who are keen-eyed and intelligent and who have put behind them the old-fashioned ways. There are excellent reasons then, why business men to-day are turning more and more to the technical schools, for new blood to develop along the lines of greatest benefit to their product. Knowledge of materials is essential, so that a man with this knowledge has at his command the ability to make raw material to any desired standard and reap the advantages accruing from evenness and reliability of the product. Furthermore, it is possible to select materials between which there may be choice or to find new materials better adapted to older ones. This is but one item in the story of efficiency, which also includes labor in the mechanical plant. Both of these are important and in each the habits of trained men for studying any proposition, new or old, come into good play, Fundamentally, the man who studies man is the one who can place his labor most efficiently and he does it because it is a technical problem.

EDITORIAL COMMENTS.

The article in this issue of the Pulp and Paper Magazine on "The Commercial Valuation of Wood for the Paper Industry" brings our attention to the question which has not been discussed very much of buying wood on some better basis than by the cord. All up-to-date men agree these days that the proper way to buy coal is on test and that any material entering into manufacture should be bought on some valuation of its worth. The custom of cutting and sale of wood by the cord is no doubt ingrained very deeply into our commercial life, but that is no reason why it should not be changed for a more equitable basis. There are two considerations, the physical valuation which considers the amount of moisture and volume of actual wood, the second is the consideration of fibre yield. There is no doubt that these considerations should come into the purchase of pulpwood and where it can be bought on such a basis, immediate agitation in that direction should be started. There is no doubt that this is the scientific method and the only fair basis.

* * * *

The Pulp and Paper Magazine will open a New York office with Mr. L. C. Randolph, formerly Advertising Manager for the Canadian Fairbanks-Morse Co., as Manager. This is an advance step in the line of expansion of this Journal. Mr.

Randolph, who takes charge of our New York Office is, as noted in our news column, an American by birth and familiar with business in New York City. We bespeak for him a cordial reception to all our friends and clients on the American side of the line. We also propose shortly to open an office in London, England.

* * * *

The past few weeks have seen a great deal of publicity given to statements that certain pulp and paper mills in this country have sold their output for the year 1914. Statements have appeared from the Laurentide Co., Price Brothers, Chicoutimi and some others stating that their plants were sold up for the entire year of 1914. These statements are, of course, promulgated simply and solely for the benefits of the holders of the stock in said companies It is extremely doubtful if more than one, or two, of these companies, which have so reported in the papers, have really booked their entire output. Such rumors do not do the pulp and paper industry any good, but are intended to boost the stock to the advantage of those interested in the said companies. Anyone would, reading these, believe that the pulp and paper industry, especially ground wood and news, in this country was one of the most promising the world has ever seen. As a matter of fact, we have all the production of news print and ground wood that we can stand and, with the new mills coming on this year, we will probably find our tonnage a little too heavy. In the face of this circumstance, which everyone agrees this a fact, it is a serious blunder for people who can speak with authority on these matters, for it can have no other effect but to induce other interests to take up this manufacture. Even, if these companies have, as they claim, their output for the next year entirely booked, that does not mean that they will not have to sell more. It is a fact, which everyone experiences, that many contracts are made between limits and very frequently the lowest limit is taken, or indeed often the buyer has to ask the mill to resell much of their product. Now this is a fact of common knowledge to everyone who knows the business of pulp and paper manufacture, so that anyone looking on these statements, which have appeared so profusely of late, must immediately see the hollowness of the claims and the injury they will do to our industry.

* * * *

Strong pressure is being brought to bear on the Government of the Province of Quebec to force them to remove their export restrictions on pulp wood to the United States. It is however, fairly certain that Sir Lomer Gouin will not give in to their demands. This would be betraying the confidence of those mills, such as Donnacona and many others, who have built on this side with the idea that these restrictions would be enforced, else they might have built plants on the American side of the line. There is no indication, however, that Sir Lomer will yield and barter the interests of the Province for the advantage of a few.

* * * *

A strong feeling has been aroused among sulphite manufacturers in Canada on account of the recent imports of Norwegian sulphite into this country to be manufactured into news print paper for export by the Ontario Paper Co. at Thorold, Ont. As is well known, the Canadian Government refunds to this importer 99% of the duty, which means that the sulphite practically enters this country free of duty. Our sulphite mills, in which there is invested millions of money certainly need as much protection as the other industries do. This law of the Canadian Government was put into effect with the idea of it bearing only on raw materials, chiefly grain, and it was never expected that it would be operative on such manufactured products as sulphite pulp. There is every ground for the urgent demands of the sulphite manufacturers of this country to have this clause in our Canadian customs law abrogated. It should be done without delay.

FORESTS AND RAINFALLS.

It is commonly thought that the moisture which forms clouds and falls as rain is almost entirely due to evaporation from the ocean, but scientific investigations show that seven-ninths of the rain which falls over land areas is supplied by evaporation over such areas, the ocean supplying only two-ninths of such precipitation. Dr. Raphael Zon, one of the foremost investigators in America, states that 'the forest evaporates more water than any vegetable cover and much more than free water surfaces.' In fact, it has been estimated by Dr. Fernow, of the University of Toronto Faculty of Forestry, that 75 per cent. of the rain-fall over forested areas is returned to the atmosphere as watery vapour, which does much to increase the amount of moisture carried by air currents passing over such forests.

In Canada, the prevailing winds blow from the west and the provinces of Alberta and Saskatchewan are largely dependent for their rain-fall on air-currents which come over the Rocky Mountains. It is a well known fact that winds passing over high mountains become cooled to such an extent that they lose most of their moisture, which falls in form of rain, and hence the land areas for many miles to the leeward of such mountains receive so little rain-fall that they are often arid. But if the leeward slopes of these mountains are covered with forests, as is the case in the Rocky Mountains, these forests will evaporate and render again available a large amount of the rainfall over these mountains, which might otherwise pass off through underground channels, and by reloading with moisture the winds blowing over the prairies, such forests make possible a much greater rainfall than might otherwise occur. Should the east slope of the Rocky Mountains become denuded of tree-growth, it is likely that much larger areas in Alberta and Saskatchewan would be arid than is now the case.

This is but one of the many reasons why the Dominion Government are preserving the forests on the east slope of the Rockies by the creation of a forest reserve now nearly 21,000 square miles in extent.

THE TESTING OF SULPHITE PULP FOR MOISTURE

BY E. SUTERMEISTER.

MUCH has been written concerning the testing of wood pulp for moisture and many methods have been proposed from time to time, yet no official or standard method has been adopted universally or even throughout any one country. There are many reasons for this state of affairs among which are to be noted the different commercial and labor conditions in different countries which render a method inadvisable in one country though it may give very good satisfaction in another. It is also true that no method has yet been devised which will give accurate results under all conditions and that a considerable amount of skill and judgment is required of the man making the test.

One of the methods which is largely used in the United States for bale fibres was described in 1909 by Mr. Little, in a report to the American Pulp and Paper Association. It is briefly this: By means of a special bit, or disc cutter, a hole is bored into the bale to be sampled to a depth of three inches; and from the discs thus cut, ten are selected as follows: one disc from the second sheet from the wrapper, two discs from a depth of one inch, three from a depth of 2 inches, and four discs from a depth of three inches. "The holes to be bored shall be so located that in five successive bales they will represent a portion extending diagonally across the bale, the first hole to be bored at the corner, the edges of the cut being at a distance of one inch from the edge of the bale. The second cut shall then be made half way between the location of the first and the centre, the third at the centre, and so on until the fifth bale is sampled in the opposite corner, in a position corresponding to the first."

This method when applied to bales of sulphite has the advantage of rapidity and does not involve the opening of the bales as does the English wedge system or the quarter sheet method. The numerous disputes between shipper and purchaser, however, prove that it is not without its faults, and it was with the object of studying some of its limitations that the following work was undertaken.

Variation of Moisture in the Bale.

It is frequently stated that below a depth of one or one and a half inches the moisture varies in either direction and the pulp is not affected by surface drying. As results frequently appeared to contradict this statement, a test boring was taken from a bale just received at the mill. The bale was about sixteen inches thick and the cut was made to a depth of approximately eight inches. The discs thus removed were divided into seven lots of about an inch each, and the moisture determined in each lot separately with the following results:

Outside inch....................	14.3% moisture
Second inch....................	11.5% moisture
Third inch.....................	10.6% moisture
Fourth inch....................	11.3% moisture
Fifth inch......................	11.8% moisture
Sixth inch......................	11.3% moisture
Seventh inch...................	11.4% moisture

This appears to confirm the statement already mentioned and it is quite likely true for pulp which has been in transit or storage for only a short time, but other tests prove conclusively that it is not true of fibre which has been exposed for any considerable time to the drying conditions of the ordinary paper mill. This point is verified by the following tests:

Samples from ten bales were taken at the time of receipt and again after about 12, 23 and 36 days' exposure in a orom in the mill.

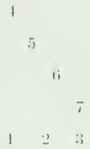
These were cut in the regular manner as described above except that the discs from the outside, and first, second and third inches were dried out separately.

The following table gives the percentage of moisture found in these individual samples.

	Percentage of Moisture.			
Position of Sample:	on recepit.	after 12 days	after 23 days.	after 36 days.
Next to outside sheet........	12.8	9.8	9.8	9.6
1" from surface.	14.3	11.1	10.6	9.3
2" from surface.	15.0	13.5	12.3	11.4
3" from surface.	15.1	14.1	12.9	12.7

Here we have a progressive loss of moisture from the inside of the bale outward and that the differences extend to the centre of the bale is shown by the moisture content of 13.5% obtained by the quarter sheet method from the centre sheets of these ten bales after 37 days exposure.

This test indicated the variation of moisture from the surface inward but gave no idea of the change from the edge of the sheets toward their centre. To show this, a sound bale, not previously sampled, was selected and seven borings to a depth of three inches in the positition indicated in Fig 1.



All discs from each of the borings were dried out with the following results.

Sample 1 contains 8.27% moisture.
Sample 2 contains 7.87.
Sample 3 contains 6.52.
Sample 4 contains 7.48.
Sample 5 contains 6.67.
Sample 6 contains 6.28.
Sample 7 contains 6.29.

These figures are surprising as they show less moisture at the centre of the bale than at the outside which is the reverse of what would normally be expected. It is probable that the fibre was overdried as it left the machine and hence absorbed, rather than lost, moisture.

Duplicate Samplings.

Since such differences exist in a single bale of fibre the chance of two tests on a given lot of pulp checking closely would seem to be remote. To investigate this point, ten bales were sampled three times by the standard method, care being taken that the correct proportion of corners, centres, and intermediate discs was taken each time. These were all taken within two hours so no error could be caused by drying out.

If the standard method can be relied on to give correct results in every case it would be expected that good checks would be obtained, while the actual figures were:—

Sample No. 1 13.46% Moisture.
Sample No. 2 12.31 Moisture.
Sample No. 3 12.61 Moisture.

If duplicate borings in the same bales give such variations how futile it is to expect concordant results from retests made on an entirely distinct portion of the shipments, which to make matters still worse, is frequently not tested until after several weeks storage.

Divided Samples.

Another method of making duplicate tests has been occasionally used by the author when it was desired to save time and labor and also to check the results of another operator who used a different oven. This consists in cutting the discs as usual but instead of taking one, two, three and four discs from the usual positions twice that number are taken. These are then so divided between two containers that from the first bale the outside set goes into one and the inside set into the other; with the second bale this order is reversed so that the can containing the outer set from the first received the inner set from the second bale, and so on. This method would be expected to give practically identical values but samples taken in this way failed to agree when dried out in two dififerent ovens. In order to see whether it was due to the ovens, two lots of ten bales each were sampled as described and the duplicate portions dried out under identical conditions. The following percentages of moisture were obtained:

	Sample 1	Sample 2	Difference
Lot 1	12.99	13.12	0.13
Lot 2..................	11.78	12.12	0.34

It is therefore evident that under the best possible conditions of sampling better checks than 0.3% cannot be invariably expected.

Retests.

In making retests for moisture on any given lot of fibre it is frequently found that there is a gain of one to three percent. in the amount of air dry fibre indicated. This condition occurs so frequently and with such careful operators that it is evidently not a matter of chance, and is therefore worthy of careful investigation.

For this purpose ten bales selected from a shipment just received, were weighed and sampled at once and then put on one side under normal conditions of summer storage. They were again tested at the end of 12, 23 and 36 days, the weight being taken each time. The borings in each test were so arranged that the correct proportion from corner, center, and an intermediate point was obtained. The following table shows the results of these four tests.

	1st. Test.	2nd Test	3rd Test.	4th Test.
Weight of bales....	4486 lbs.	4437 lbs.	4413 lbs.	4375 lbs.
% Bone Dry Fibre..	85.32%	87.10%	88.06%	88.67%
Weight bone dry discs removed in previous sample..	......	6.48 lbs.	6.62 lbs.	6.69 lbs.
Total bone dry fibre.	3827.5lb.	3871.1 lb.	3899.2 lb.	3899. 1lb.
Total air dry fibre 10% moisture	4252.8 "	4301.2 "	4332.4 "	4332.3 "
Increase of air dry fibre over first test		1.13%	1.87%	1.87%

An analysis of this table proves that the percentage of moisture in the outer three inches decreases more rapidly than it does in the inner part of the bale for the total loss of moisture, as shown by the weights is not sufficient to counterbalance the increase in the percentage of bone dry fibre as shown by regular method of testing. The result is the **apparent** increase of air dry fibre, which, as is seen, amounts to nearly 2% in a little over three weeks. It is probable that the first test is more nearly accurate than any of the others as the fibre at the time of receipt is more nearly in the condition in which it left the mill than at any time afterward.

This test offers a reasonable explanation of the higher results obtained in retests and shows conclusively that the method of sampling cannot be applied indiscriminately. While the errors are not sufficient to condemn the method entirely they do lead to the suggestion that contracts be so worded that the seller cannot wait six or eight weeks before demanding a retest on any given lot of pulp.

Temperature of Drying.

While making the investigations described above the question was raised as to the temperature at which it was safe to dry the samples. Authorities differ on this point, Hoffman claiming that decomposition of the fibre begins below 100°C while Renker maintains that temperatures up to 125°C are safe to employ. To gain a little first hand evidence on this point small samples of sulphite were dried out in gas-heated oven and the percentage of moisture determined at different temperatures as follows:

Time.	Temp.	Percentage Sample No. 1	Moisture Sample No.2
7 hours at	95-100°C	6.35%	5.82%
3½ hours more at	95–100°C	6.37	5.92
7 hours more at	108–113°C	6.57	6.05
7¾ hours more at	108–113°C	6.61	6.08

Additional tests were made with large samples under strictly commercial conditions to see whether the time of heating had any influence, and when this was completed one of the samples was subjected to a temperature of 140°-150°C purely as a matter of interest. The results were:

Hours.	Temp.	Air Dry Fibre. Sample No. 3	Sample No. 4
16		99.53	95.77
24 more at	105–115°C	.....	95.81
24 more at	103-110°C	99.53	95.87
24 more at	108–112°C	99.58	95.87
20 more at	140-150°C	99.20	
24 more at	140–150°C	99.02	

For all practical purposes we are justified in concluding that it is safe to dry at 100–115°C and that exposure to these temperatures for three or four days causes no appreciable loss of moisture, nor any decomposition which seriously affects the weight of the sample. When temperatures of 140–150° C are reached the case is different, the fibre becomes brittle, appears burned, and shows a progressive loss in weight.

Temperature of Weighing.

Another point which was looked into during this work was the temperature at which the fibre was weighed. It is frequently the custom to remove the dried fibre directly from the oven to a tared can and to weigh the latter before it has had a chance to cool. This will of course introduce a slight error and in order to get some idea of its magnitude a can of fibre was weighed hot and again after cooling for 40 minutes. The same was done with an empty can to show that the difference, if any, was not due to change in the fibre but was dependent on the temperature. The weights obtained were:

Can and Fibre hot................	2211.5 gms.
Can and Fibre cold................	2213.0 gms.
Increase	1.5 gms.
Empty Can hot..................	1497.0 gms.
Empty Can cold..................	1498.7 gms.
Increase......................	1.7 gms.

On an average sample of 800 gms. this difference in weights would cause an error in the moisture test of 0.2% but since the error would be influenced by the temperature of the oven and by the size of the sample no fixed correction can be applied. For all ordinary work the error is inappreciable but for the most accurate cases the dried samples should be cooled before weighing.

Summary.

It is shown that the moisture in baled sulphite varies with the position of the sample and that the time of storage has a large influence on its distribution.

Duplicate samples from the same bales were found to differ in moisture content by as much as 1.15%.

Divided samples cannot be expected to check closer than 0.3-0.4%.

Retests made after the pulp has been exposed to average storage conditions for three or four weeks cannot be expected to check the first test at all closely.

Drying the samples at 100-115°C causes no appreciable error even if the drying is continued for three or four days.

Weighing the dried sample while hot causes a slight error and should be avoided for the most accurate work.

The writer wishes to express his indebtedness to Mr. J. D. Small who was largely responsible for the careful carrying out of the tests.

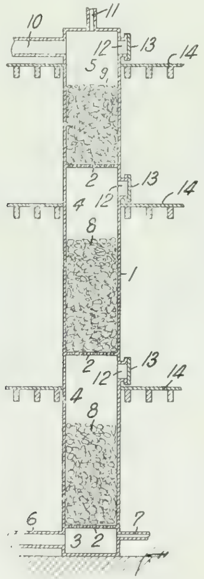
Process of Recovering Escaping Acid-Gases from Sulphite-Towers

By JUDSON A. DE CEW, Montreal, Patentee.

U. S. Patent No. 1,077,243.

This invention relates to a process of recovering escaping acid gases from the sulphite towers used in the manufacture of sulphite liquor for pulp making.

In the manufacture of sulphite pulp, the liquor is usually prepared in towers, or their equivalent, packed with limestone by forcing gas from a sulphite burner up through the limestone while a stream of water passes down. The water and sulphur gas combine and form sulphurous acid which in turn attacks the limestone and produces the sulphite liquor. Ordinarily, the sulphur gas is composed of from 12% to 17% sulphur dioxide, by volume, the balance being mostly nitrogen, and this gas leaves the tower containing from 1% to 2% sulphur dioxide. Therefore, if no gas leaks out of the towers the loss is about 10% of the amount entering. In many towers, however, provided with exhaust fans, the loss amounts to from 15% to 20%. In order to overcome this loss, I pass the gas through moistened stones of magnesia.



The apparatus for carrying out this recovery process is illustrated in the accompanying drawing.

Referring to the drawing, 1 designates a tower of suitable dimensions provided at intervals with horizontal apertured diaphragms 2 which divide the tower in chambers 3, 4, and 5. The chamber 3 at the bottom of the tower is provided with a gas inlet pipe 6 from a sulphur burner and with an outlet pipe 7 for the sulphite liquor. The chambers 4 are for the reception of limestone ($CaCO_3$), 8 on which the water and sulphurous acid acts. The upper chamber 5 contains calcined magnesia 9 and is provided with a gas outlet pipe 10 and a water inlet pipe 11. The chambers 4 and 5 are provided at the top with suitable charging apertures 12 closed by doors 13. Adjacent the doors are loading floors or platforms 14.

The operation is as follows:—Sulphur dioxide (SO_2) is supplied through the pipe 6, and rises through the limestone which is kept wet with water from the pipe 11. The water and sulphur dioxide combine and form sulphurous acid which attacks the limestone, the product being the sulphite liquor which falls into the chamber 3 and is drawn off through the pipe 7. The nitrogen which enters with the sulphur dioxide and also other gas liberated by the chemical action escape through the pipe 10. The reaction is as follows:—

H_2O and SO_3 - H_2SO_3
H_2SO_3 and $CaCO_3$ - $CaSO_3$ and H_2O and CO_2
H_2SO_3 and $CaSO_3$ $CaH_2(SO_3)_2$

In the second line of the reaction where the CO_2 in the stone is replaced by SO_2 in the acid the rate of the action depends on the strength of the acid. Therefore toward the top of the tower the stone is very slowly attacked because the acidity of the water is so slight. There is also a small percentage of unabsorbed gas which is lost. The additional chamber 5 containing calcined magnesia preferably in lump form prevents this loss. The magnesia does not slack like lime and also absorbs the sulphur dioxide much more readily than limestone. The acid which would be too weak to attack limestone is absorbed by the magnesia and is recovered as magnesium sulphite and bisulphite.

The apparatus need not necessarily be a tower but may be a series of intercommunicating vessels arranged in a train the final vessel of the train being charged with calcined magnesia.

PULP AND PAPER MAGAZINE OPENS NEW YORK OFFICE.

Mr. L. C. Randolph advertising Manager of the Canadian Fairbanks-Morse Company has resigned to open up and take charge of a New York office for the Industrial and Educational Press, Limited, of Montreal and Toronto, publishers of the Pulp & Paper Magazine, Journal of Commerce, Canadian Textile Journal, Canadian Mining Journal, Canadian Miller and Cerealist and the Canadian Fisherman. He takes up his new duties on December 1st and will devote his entire time to the interests of these Journals.

Mr. Randolph is a Virginian by birth being a great-great grandson of Thomas Jefferson who was twice President of the United States. The Randolph family has furnished four governors to the State of Virginia

Mr. Randolph who was born in 1878, studied engineering at the Virginia Polytechnic Institute for three years then followed his profession for some time, finally joining the advertising staff of the Railway Age Gazette of New York. From there he went to the Corrugated Bar Company of Buffalo, as advertising manager and came to Canada as advertising manager of Canadian Fairbanks-Morse in March, 1912. He is widely and favorably known among Canadian advertising men.

THE RT. HON. THE LORD MAYOR OF LONDON—A PAPER MAN

SIR T. VANSITTART BOWATER.

By Our London Representative

ONCE again it has fallen to the lot of the British paper-making industry to provide a Lord Mayor for the City of London, and during the year 1913-14 the old historic Mansion House will be occupied by Sir Thomas Vansittart Bowater, with his wife, Lady Bowater, as a most genial hostess. That the position to which Sir Vansittart Bowater has been called upon to fill is honorable and dignified, goes without saying. Men who are called upon to serve in the office are fortunate in their lives, and naturally paper-makers and those allied to the industry feel somewhat elated that the name of Bowater will go down to posterity on the Mayoralty records of the great City of London, with its immense commercial interests. The preliminaries through which Sir Vansittart Bowater has had to go before taking office on November 9, are customs of no mean order. Attended by the corporate officials, sheriffs, civic dignitaries, and the retiring Lord Mayor, he was escorted to church to attend Divine Service, and a few hours afterwards his name was submitted to the court of Aldermen of London as a fit and proper person to preside over the destinies of the City. But this was not all of the ancient customs, because he had to pay homage a week later at the House of Lords and listen to what the representative of King George V had to say as to the choice made by those responsible for his election. There was a brilliant assembly and the Lord Chancellor of England, who was robed in his gold and black gown, while all the other officials and dignitaries wore their robes of office, addressing Sir Vansittart Bowater said: "I am satisfied that Sir Vansittart will be a worthy successor of that long line of distinguished citizens who have occupied the high position of Lord Mayor. Now my Lord Mayor-elect one important matter remains. I have it in command to indicate to you that His Majesty King George V has been graciously pleased to approve the choice which the City of London has made." The loving-cup was then passed round and the ceremony closed. Lord Mayor's day on November 9 was the next great event. There was a historical pageant and a military and civic procession in London on that day, when Sir Vansittart took the oath of office for the ensuing year, and a banquet of great national importance followed in the evening. He is now a busy man as his duties command all his time, but his business in the paper industry is ably looked after by Mr. F. H. Bowater and Mr. F. W. Bowater, his two highly respected brothers, with whom he is associated as a practical paper-maker. Sir Thomas Vansittart Bowater was born in Manchester in 1862 and is the son of the late William Vansittart Bowater, whose name is greatly revered in the English paper trade. He is, consequently, a descendant of two men of renowned fame—Admiral Edward Bowater (Admiral of the White Fleet, 1829) who fought in the Battle of Trafalgar with Lord Nelson and General Sir Edward Bowater, who fought and was wounded when serving under the "Iron Duke" at Waterloo, and afterwards became equerry to the Prince Consort. From the Admiral Sir Vansittart has inherited the glass goblet in which Nelson pledged his captains before the battle of Trafalgar. At the age of 18 Sir Vansittart left his native city, where he had served part of his apprenticeship and where he was educated at the old Broughton College, to enter upon his career proper. He subsequently joined his father as a papermaker and agent, and is now managing-director of the well-known firm of W. V. Bowater & Sons, Ltd., papermakers and wholesale agents, etc., 159 Queen Victoria Street, London. He is a most successful business man—Keen, shrewd, courteous and thorough in his dealings with all his patrons. Sir Vansittart is also an expert in the handling and dealing of paper. Indeed, an old friend of his said on one occasion, "What he does not know about paper is not worth knowing." Needless to say, the firm of Bowater & Sons, Ltd., is engaged yearly in dealing with an immense paper trade. Their warehouses in Glasgow and London are kept constantly busy and then, in addition, branches in India, Australia, China, Japan, etc., have also to be well looked after. In 1908 at the Franco-British Exhibition and at the Crystal Palace Exhibition, 1902, the firm was awarded gold and silver medals. Sir Vansittart Bowater is also keenly interested in the progress of the wood pulp industry, and has often spoken at the successful banquets held each autumn by the British Wood Pulp Association in London. In public life his success has been just as great as in his business career. About 1899 he became a member of the Court of Common Council in London and in 1905 he was elected a High Sheriff of the City, during which he assisted in the reception of King George and Queen Mary on their return from their first visit to India. He also visited Rome and Milan in state and was entertained by the King and Queen of Italy with his civic colleagues. At the conclusion of the year of his office of High Sheriff he received the honor of a Knighthood from the late King Edward. In 1907 he was elected an Alderman of the City of London, by virtue of which he is now Lord Mayor and Chief Magistrate of the Capital of Great Britain and Ireland. He is the second Lancashire man to occupy this honorable position during the seven centuries of the London Corporation's existence, his predecessor filling the office in

Sir. T. Vansittart Bowater

the reign of Queen Elizabeth. Sir Vansittart Bowater has had numerous foreign decorations conferred upon him. He is also deeply interested in Freemasonry, being a Past Grand Deacon of England, and a Past Great Overseer of the Grand Mark Lodge (England).

De Cew Patents New Wood Preserving Material

Judson A. De Cew, Chief Engineer of Montreal, Que., has invented new and useful Improvements in Wood Products, of which the following is a full description.

The object of this invention is to provide a wood product which will be resistant to the attack of ferments, fungi and insects; and at the same time to provide a method whereby a soft wood may be rendered harder and more resistant to mechanical or physical wear.

A further object is to provide a method of greatly reducing the cost of treatments by the well-known processes of wood preservation.

In the treatment of wood by impregnation with oil, it is necessary to use comparatively large quantities of oil to thoroughly impregnate the fibro-cellular bodies, and a large excess of oil must remain in the wood without resultant benefits. By the use of this invention, the exact amount of oil necessary for preservation is introduced and this is carried into the wood in the form of an emulsion, until the desired depth of penetration is obtained.

The present invention consists essentially in mixing suitable quantities of waste sulphite liquor and oil in the form of an emulsion, which is used to impregnate the fibro-cellular bodies. I may if desired introduce any soluble salt which in itself will not emulsify with oil, but which when mixed with oil and waste sulphite liquor will form a perfect emulsion. It will thus be seen that two preserving agents such oil and a soluble salt may be combined in the form of an emulsion with a third preserving agent, and in this way the physical difficulties of impregnation by the usual methods are overcome.

The period of treatment as well as the temperatures and pressures employed vary according to the results desired.

In carrying out my process, timber in the form of boards or the like, is placed in a closed tank and subjected to a steaming process, after which the steam and air are withdrawn from the tank by any suitable means such as a suction pump. By withdrawing the air and steam from the material, the wood is left free to readily absorb the mixtures or emulsions mentioned. Seasoned wood may be treated without a steaming process. If the seasoned wood is being treated the material is simply immersed in the mixture or emulsion consisting of suitable quantities of waste sulphite liquor and crude oil or creosote oil, the steaming process being eliminated. To this emulsion may be added soluble salts such as chloride of zinc, mercuric chloride, sulphate of aluminium, sulphate of copper, or sulphate of iron. These salts are readily dissolved by the mixture, and form with the waste sulphite liquor and oil an emulsion which impregnates the fibro-cellular body without, however, leaving an excess of the materials within the cellular cavities. In this way, the relative amounts of the preserving materials may be limited to the desired quantities, and may be controlled to meet various requirements. The absorption of the emulsion may be increased by subjecting the contents of the vessel in which the wood is placed to pressure. After the mass has been allowed to cool the excess material is removed. For certain purposes the operation may be repeated if necessary. As a result of the impregnation and absorption of organic material, the wood is made heavier, harder and stronger.

By introducing waste sulphite liquor, several important results are accomplished. The waste sulphite liquor alone acts as a preservative and hardening medium, and being a cheaper material may replace in part any of the other preservatives used. The most important function, however, of the waste sulphite liquor is to act as an emulsifying agent. Its capacity for forming an emulsion with oil makes it possible to combine definite proportions of oil with any water soluble salts. Another important function of the organic matter of the waste. sulphite liquor, when used with any mixture containing creosote or other oil, is that it greatly reduces the rate of evaporation of the lighter oils from the mixture.

Superheated Steam

Every chemical-pulp and paper mill should have Superheaters for steam even if they have not Steam engines built for Superheated Steam.

The Superheaters should, however, be constructed to suit the special purpose for which they are to be used.

In boiler plants where there are no steam domes on the boilers there is a large quantity of water from the boilers mechanically drawn off by the steam and even from boilers provided with domes an appreciable quantity of water escapes.

A considerable amount of steam is also condensed on its way to the point where it is utilized specially if the insulattion of the pipe line is poor.

The ideal steam is that which reaches the point where it is used as saturated dry steam.

The size of superheaters depends on the quantity of steam produced on the amount of water mechanically drawn off by the steam, on the length of pipe lines and on how the pipes are insulated. This has to be calculated for each individual plant. As a general rule it may be said that steam, superheated to about 100°F will in most cases reach the point of utilization as saturated dry or nearly dry steam.

Superheaters will not only make it possible to get dry or nearly dry steam to the place where it is to be used, but will also increase the capacity of the boiler plant as they convert the mechanically drawn water, as well as the otherwise condensed steam to dry saturated steam, thus also saving the heat that without the use of superheaters would be lost with the water in the steam at the point of utilization.

In cases where the existing steam plant is forced the installation of superheaters will not only increase the capacity of the plant but will also save coal as the less a plant is forced, the better is the coal utilized.

It will in most cases prove both cheaper and much more economical to install superheaters rather than add an additional boiler to an over forced plant.

In the dryers of paper and pulp drying machines the surplus water from wet steam prevents the steam from reaching parts of the inner surface and thus lessens their capacity.

In cooking sulphite pulp as well as sulphate and soda pulp less reliving is necessary when dry steam is used. This saves a large amount of steam and in the case of sulphite cooking a weaker acid can be used.

The steam should not be superheated further than to deliver saturated dry steam to the different engines, machines and apparatus.

Superheated steam spoils valve-discs, packings and gaskets when not made to use with it. It is also apt to "burn" the chips and fibres round the steam inlet in digesters.

Care should be taken that the pipe lines used for superheated steam are well constructed and that joints and valve packings, etc., are made of suitable materials, otherwise there will be no end of trouble.

CHINA CLAY AND TALC IN THE MANUFACTURE OF PAPER

By **DR. P. ROHLAND**, Stuttgart.

(Translated from "Revue de La Papeterie" by C. E. Bandelin.)

CHINA clay and talc have lately acquired a great importance in the manufacture of paper. The clay because it absorbs combined coloring substances, such as anilin colors and also colloidal substances, so that they may be utilized for the purification of waste liquors, and the talc, because it can be used to eliminate rosin from the cellulose and to assist in the sizing of the paper. Record analyses have shown, that colloidal clays absorb complicated combined coloring substances, which are polymerized colloidal in solution, artificial coloring substances, such as the anilin colors, animal colors such as the carmin, and vegetable such as litmus. Other experiments have shown, that the chemical constitution is of influence in this case, so that there are for instance several vegetable coloring substances, which are not at all absorbed. The influence of the chemical constitution of different coloring substances has been observed by the fact, that the absorption by colloidal clay is different from them from a quantitative point of view. 30 grms. of colloidal clay are required to uncolor completely O.003 grms. of metanyl yellow, while the same quantity of anilin blue already becomes uncolored by 5 grms. of the same clay.

The following scale may be suggested from this point of view:

Anilin blue.
Victoria blue.
Violet.
Diamond green.
Orange.
Vesuvine.
Metanyl yellow.

To uncolor the same quantity of those coloring substances O.003 grams.) are required for the three first substances, 5 grms. of colloidal clay, for orange and vesuvine, 10 grms. and for metanyl yellow, 30 grms.

From this point of view a connection seems to exist between the absorption and the constitution of the different coloring substances, which we are now going to investigate.

The absorption with colloidal clay is lower with coloring substances derived from azo and diazo combinations. Besides there exists, at least until now, one vegetable coloring substance, which is not absorbed by colloidal clay; viz. the coloring substance in waste sulphite liquors. Nothing very exact is as yet known about the constitutuon of this yellowish brown coloring substance, but it is not absorbed by colloidal clay and from this fact it may be concluded, that it has a constitution considerably different from anilin colors and other coloring substances absorbed by the clay. Having to a certain degree the wood fibre for its origin it may be related to the chlorophyll; it is insoluble in water as this; an experiment to absorb it with clay can unluckily not be executed.

The coloring substance of wash bisulphite liquor cannot be eliminated by colloidal clay, except after having been transformed into Paris blus by oxidation by the air and addition of potassium ferrocyanure. The Paris blue then is absorbed by the clay on account of its colloidal nature.

Chemically pure talc has the following composition.:

63.5%	SiO_2
31.7%	MgO
4.8%	H_2O

The different kinds of talc are now regarded as acid salts of metasilicic acids from a theoretical point of view and corresponding to the formula:

$Mg_2\ H_2\ (SiO_3)_4$

Talc from Syria, analysed by the author, had the following composition:

SiO_2	61.95%
MgO	34.52%
Al_2O_3	2.61%
H_2O (chemically combined)	0.60%
Fe_2O_3	0.25%
$CaCO_3$	traces.
	99.93%

Talc thus represents a mixture of silicates of magnesium and aluminum; compared with the composition of the pure substance, it is noticeable that the hydrogen chemically combined has been substituted by magnesium on aluminum. This mixture might be regarded as an intermediate stage as the $Mg\ Si\ O_3$ often is transformed into talc. It is true, that talcum is hydrolyzed though weakly even at usual temperature. An alkaline reaction may easily be noticed if the talcum is left in contact with water at a high temperature, for instance 50°C. This reaction may easily be proved by red litmus paper or with a solution of phenolphtalein in alcohol.

The composition of pure talcum is as follows, talcum is an anyhdrous magnesium silicate with insignificant admixtures; it is true that its covering faculty seems to be weaker than for clay.

Talc also forms—under special circumstances— colloidal substances in contact with water, hydroxides of silicium and magnesium, on which depends its absorbing qualities, A curious phenomen is related with this circumstance.

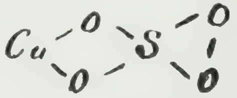
If finely powdered talcum under these circumstances is mixed with a solution of coloring substances, for instance in a water glass, filled about half with talcum and the solution so will the talcum swell up, fill the glass to the brim and then slowly run over. After some time it sinks back again.

This phenomenon is exactly similar to the behaviour of the white of eggs, having been vigoursly "beaten on."

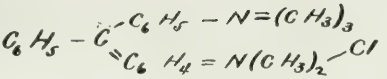
Consequently there exists an increase of volume, which can be noted with all colloidal substances.

It is therefore easily to be supposed, that talcum absorbs coloring substances as do colloidal clays and such is also in effect the case.

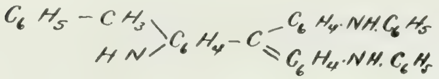
These colloidal talcums behave exactly as clays of this kind. They also do not absorb coloring substances of a simple composition such as sulphate of copper and bichromate of potassium. The sulphate of copper has the following composition according to its theoretical constitution.



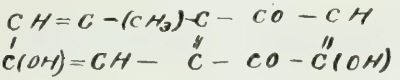
On the other hand they absorb combined coloring substances, aniline colors, such as the malachit green, which has the following constitution:



or the aniline blue with the constitution:



or on animal coloring substance, as carmine, with the composition:



$$\begin{array}{llll} CH = C - (CH_3) - C - & CO & - CH \\ | & \quad \| & & \| \\ C(OH) = CH - & \quad C - & CO & - C(OH) \end{array}$$

and further coloring substances from plants, such as litmus.

The coloring substances absorbed by talcum become more resistant against light,

This certainly depends upon the circumstance, that the colloidal talcum surrounds the absorbed coloring substance and preserves it from the rays of the sun; a colloidal covering has been formed around it, which prevents the color from getting weaker.

Besides coloring substances talc absorbs in the same manner as clay on account of their colloidal structure, colloidal substances and has a great absorbing power for them. Such colloidal substances are dextrine, albumine, tannin, etc. Animal sweat is also absorbed by talcum, as is also what is of special interest for the manufacture of paper, rosins and oils from resinous wood; depending upon this circumstance talcum may be used to eliminate rosin from chemical wood pulp.

The talcum may then be added either in the beater or in the digester. This absorbing quality of the talcum extends also to printers ink.

As has been shown it is the colloidal nature of clays and talc, which makes them so valuable to the manufacture of paper.

PAPER MILLS ENCOURAGE THE Y. M. C. A.

The paper mills encourage the locating in their midst of Y. M. C. A. advantages.

The Hollingsworth & Whitney Co. erected at a cost of $40,000, a fine building containing dormitories, restaurants, game rooms, bowling allesys, motion picture hall, and, in addition, an excellent hospital. This is for the service of the woodsmen at their logging camp at Greenville Junction, Maine. At Mittineague, Mass., with a population of 4,000 is a building costing $22,000. The companies contributing were: Mittineague Paper Co., Southworth Paper Co., American Writing Paper Co., and the Worthy Paper Co. The features are: reading room, pool room, bowling alleys, game room, educational classes, Bible classes, gymnasium, baths, and dormitories.

A building is proposed at Berlin, N.H., and to cost $75,000. The Berlin Mills Co., Burgess Sulphite Co., and International Paper Co. are interested supporters of the plan.

Our London Letter

There are reports from Stockholm. also indications in London and Manchester, that some of the producers of sulphite are modifying their ideas, and it is no secret that there is more sulphite and sulphate procurable for delivery this year than was generally believed. A fair quantity of sulphite has been bought for delivery within twelve months at a figure which was not entertained two months ago, but I know that the Swedish producers declined to take on the contract beyond a year from this month. This business merely serves to prove that the unsold balances are larger than represented and the holding back of deliveries in America and England is having the inevitable effect.

I am of opinion that it is possible to buy sulphite in fair quantities for early delivery, on better terms now than has been possible for over a year past and it is quite a change for chemical pulp agents in England and Scotland to be out and about looking for business.

This may not mean any effective break in the market but one of the largest paper makers in Scotland stated that he had seen sufficient during a recent visit to Sweden to justify him in "taking his chance for 1915-16 rather than pay the prices now being asked."

The official organ of the Swedish pulp mills is constantly reiterating the consequences of the "enormous demand in the near future by America" but in England these arguments are accepted as mere optimism, and what will really happen appears to be guess work. The market is dull and the figures given in the Scandinavian papers as current prices of cellulose are the prices quoted by agents for press purposes and really do not represent business done. I am able to state that without reserve one of the principal European agents told me this week he had just visited the principal English mills and found no disposition of the paper-makers to buy, and added "the majority of the mills are so well bought that they are not open to business, in fact, many are overbought and are asking for deliveries to be held back.

The German paper mills are very short of orders (for white paper) and are dumping deliveries into London in increasing quantities at prices the British mills cannot look at. This subject will come before the British Paper Makers' Association next month and the tariff reform section is likely to say something on the subject although a duty on paper is quite out of the question in England as a practical proposition. One of the largest paper makers in England, asked this week on his views regarding the possibility of cultivating business with America, said "Our policy is not to make paper in England for America. What we have to do is to keep our own market against the foreigner and make in England the paper now coming in from Scandinavia and Germany," and he added "We can do it if we play our cards properly."

BOARDS FOR STENCILS.

Cardboards for making stencils for house painters are made from equal weights of unboiled jute rags and the best paper waste (bookbinders' scraps) on a cylinder paper machine provided with a goods and and knot catcher. To get the necessary graining surface, the wire is covered with a damp and much worn wet felt or the dried paper is passed at small pressure through a calender between coarse felts which impress the surface of the board. The finished boards are examined for knots, and any present are removed with a knife.

THE COMMERCIAL VALUE OF WOOD FOR THE PAPER INDUSTRY

By **MARTIN L. GRIFFIN.**

IT is with much hesitation that I undertake to speak on this subject, since I am neither a lumberman nor a woodsman. I have, however, always been closely identified with the paper industry and what I have to say regarding values in wood, will naturally follow from what I know of its uses in this industry. I consider it also my opportunity to present in public some personal views I have hitherto expressed only in private.

Formerly commercial woods were used exclusively for lumber and fuel to provide shelter and warmth for man. In early times nature provided wood in abundance. It was easy to get, easy to fashion with simple tools. Where it was plentiful in this new country of ours, it was not valuable, it was useless, it cumbered the land needed for agriculture.

With the commercial growth of our nation, natural resources began to have values, and standard units for bargsining must be had. Local customs made various rules for measuring wood in the log, and the cord came to be the unit for the smaller sizes. These rules and measures have continued to the present time and are not suited to present conditions in the lumber trade, and are totally inadequate to express values for the paper industry. The former calls for a dimension and volume unit, while the latter calls for a unit commensurate with quality and yield of the product from the wood. It is very natural that lumber units should have continued with the newer industry for many reasons. First, because they are so intimately associated, second, because values in wood for pulp must be at least the equivalent for values in lumber, and third, because of the difficulty of valueing it in any other way. While wood was plentiful and cheap these volume units were satisfactory, but in no sense standard; and with the growing scarcity of wood, resulting in poorer quality, smaller sizes, and increasing price, these units have now become very satisfactory to the pulp industry. In contrast with the woodsman and the sawyer who know just what a log will yield, whether it be Balsam or Spruce, regardless of whether it grew on upland or swamp, the pulp manufacturer must take his chances on its yield in pulp, and these chances are now determining issues. Fruthermore, if a log is partially rotten, unsound or knotty, no one would pretend that it had any value for lumber, but it is considered a good delivery for pulp. Somehow the general impression prevails that pulping will transform such wood into pulp of high qaulity and yield and as long as it will be accepted, it will be delivered.

So far unit values in wood have been fixed by dimension, rather than by its yield in terms of its useful products. With few exceptions raw materials are valued in terms of the constituents sought. Thus, ores are bought and sold in terms of their metallic contents; fertilizers, in terms of phosphoric acid, potash and ammonia; and coal, until recently was valued, much as wood is, at so much per ton, without regard to its heat units. Now, it is largely sold on its fuel value. For a time there was great opposition to this method on the plea that it was a natural product and it would be unfair to the producer to value it on any other basis than tonnage.

The consumers of wood for pulp, in buying by the cord, are placed in a more unfavorable position than consumers of coal, buying on a tonnage basis. The latter may be sure they are getting the weight they pay for, while the former have no satisfactory assurance of anything when buying by cord measure as I will illustrate.

A cord of wood is defined to be a stack of 4 ft. high and wide and 8 ft. long, containing 128 cu. ft.

In the Forestry Quarterly of the New York State College of Forestry, Vol. 1—No. 4, 1903, will be found an article on Factors Influencing the Volume of Solid Wood in the Cord, by Raphael G. Zon to which I wish to call attention.

1st.—The Length of Sticks.—Sticks are never entirely straight and smooth, and in piling them one above another, there always remain cracks, which become larger, the longer the sticks are and vice versa. With four feet sticks as standard, changes in the stick length, from one foot to six feet, vary the difference in the solid volume of the same stack measure, from 14 percent. to 35 percent.

2nd. The Diameter of Sticks.—The smaller the sticks, the greater the number, and number of cracks to the cord, and consequently less wood. The difference in solid volume of two stacks, whose sticks are twice as large in one case as in the other, may amount to 13 per cent.; and if the sticks of the one are four times as large as those of the other, this difference may amount to 25 percent.

3rd. Split Wood.—Large sticks are often split to facilitate handling and drying. After splitting they cannot be stacked as closely as before. This swelling amounts to 5 to 6 percent. As a rule, the longer and thinner the sticks split, the greater is the swelling of the stack.

4th.—Form of Stick.—The straighter and smoother the sticks, the smaller the air spaces between them and consequently the greater the solid contents.

5th. The Species.—Soft woods contain on the average about 3 percent. more solid wood to the cord than hard woods, due to straighter habits of growth and smoother bark.

6th. Green and Dry Woods.—With the drying of wood there is a consequent shrinkage in volume. Green hard wood will shrink by completly air drying from 9 to 15 percent. and dry soft, 9 to 10 percent..

7th. Piling and Fixing the Stack.—The higher the stack the less closely can it be piled. The heavier the stick and the weaker the piler, the less close is the piling.

It has been observed that there is more solid wood in a stack when only one end supporting stake is used than when two is used. There always remains some space between the stakes holding the stacks together and the wood; therefore, the fewer the stakes supporting end, or the longer the piles, the more solid wood. Just here arise many controversies over wood measurements where the method of scaling in cars is employed. An ordinary freight car will hold three crosswise stacks in each end and one short lengthwise stack between, making the equivalent of seven short staked piles having fourteen ends, about a cord to a stack. There are also many minor details which affect the amount of solid wood in the unit measure.

This brief review teaches that no true comparison can be made between two stacks of wood containing the same number of cords, but having sticks of different lengths, diameter and shape, unless the actual solid volume is known Tables covering the factors of length and diameter are given which might be of much use if an agreement could be reached to standardize such tables, but a fixed ratio between a gross volume unit and its solid contents would have no added value.

The first important step, therefore, in valueing wood is to establish a method of computing the solid contents, and the fixing of a volume unit.

In this country the cubic foot is the best unit and is already gaining a foot hold. Recently a special commission on the measurement of logs, has recommended the solid cubic foot as the statute unit of measurement to the legislature of our State of Maine. Such a unit is ample and adequate for the lumber trade and would be much more satisfactory to the pulp industry than the cord unit. But some one will object that while it would not be difficult to scale logs for lumber, it would be a huge task to scale each separate piece of pulp wood entering our large paper mills; and furthermore how would you deal with the wood chopper who cuts by "piece work" and the farmer who cuts a few cords. I admit there are some difficulties and there would be many obstacles to contend with.

The plan I bring to you this evening is the fruit of a large amount of work done about a year ago, when I was asked to value a pile of mixed two and four foot wood containing about 15,000 cords of mixed Balsam, Spruce and Hemlock.

This brings me to the consideration of a very important matter in general, and its wide application. I refer to the matter of sampling. A sample may not only truly represent a grade of quality, but when drawn at a proportional rate, it may as truly represent a quantity. In such cases it becomes a ratio of measurement. It is not my purpose here to go into the principles of correct sampling, but only to refer to it as an invaluable instrument. It is obvious,—this instrument cannot be applied like a yard stick to wood stacked in ranks, but as soon as the sticks are set in motion, as loading and unloading or movement to destination on conveyors or rivers, it may be employed to advantage.

I will now describe how we proceeded.

Method of Sampling.

During one entire month the supply to the mill from the pile was sampled daily, by taking every fifth stick from the conveyor till one hundred such sticks had been gathered. At the end of each week these daily samples were sorted into grades according to their appearance as to quality. The amount of these grades was then determined by measurements of weight and volume and number of sticks on the basis of a cord of 128 cubic feet. By a count of all the wood entering the mill for the period, an accurate measurement may be had and a complete analysis of its quality and characteristics as determined on the sample.

The work done on the daily samples consisted in establishing the percentage proportion by number of sticks in the several grades, and proportional volume and weight percentages. The length of each stick was taken and the results were expressed in percentages of the standard length. The moisture was obtained by sawing discs out of the sticks and drying in the usual way.

To illustrate—The results we obtained for weekly periods during the test, in comparison with two lots of four foot wood of satisfactory quality, were as follows:

Basis—1 Cord of 2-Foot Wood.

Quality of the Wood.

No. of Sticks Sound	Nos. 2,	3.	Volume % Sound	Nos. 2,	3	Weight % Sound	Nos. 2,	3	Length	Moisture	Rejected No. of Sticks
141	22	6	78.2	18.9	2.9	73.8	20.3	5.9	98.0	43.8	1
147	18	6	80.5	12.7	6.8	81.0	12.5	6.5	98.5	43.3	2
139	22	11	76.6	16.3	7.8	76.2	16.2	7.5	98.7	38.4	2
157	24	13	76.1	14.2	9.7	76.2	13.5	10.3	98.5	48.2	1

Basis—1 Cord of 4-Foot Wood.

106	3	..	96.0	4.0	0	96.0	4.0	0	101.0	31.0	
75	5	.	94.5	5.5	0	94.5	5.5	0	99.3	24.24	

A study of this table will reveal the quality of the wood in all particulars so that true values could be assigned to it.

So much for the physical valuation and the method of measurement by proportional sampling.

There remains yet one criticism on this mode of measurement. If all wood were equally dry and of the same specific gravity, the method would be adequate, but as stated in the early part of this paper, green soft woods shrink in volume from 9 to 10 percent. On the average, therefore, we may say that a purchaser will get 5% less if the wood is green, than he would if it were measured air dry. So, there may be a considerable difference in the specific gravity of the same species, due to difference in environment and other minor causes, as well as in different specles.

The Valuation oi Pulp Wood by Weight.

It is becoming more and more the custom to value commodities by count and by weight. The laws of some states now prescribe that our principal food-stuffs shall be sold by count or weight instead of by volume. There are equally good reasons why wood should be sold by weight, and with few exceptions there are no obstacles in the way, and if there were some concerted action to this end, it is quite likely these could be removed.

Formerly freight rates on wood were fixed by the carload and haul, but in recent years, the rates are fixed on the weight basis. Therefore, where wood is delivered by rail, the way is clear, both to the shipper and consignee to trade on the weight basis. That basis should be, the moisture free weight plus a fixed percentage addition for atmospheric moisture as in the case of wood pulps. The determination of moisture in wood can be made as easily and accurately as moisture in pulp and means for doing it could readily be supplied. For instance—a weighing, sampling and testing plant could best be established at destination and the expense for maintenance be borne jointly by both parties.

This procedure would develop two very important phases of the situation.

First—The amount of water contained in the wood upon which freight was being paid, and this in the end, must be paid by the purchaser. The moisture in spruce wood will ordinarily vary from 30 to 50% anda cord will vary correspondingly in weight from about 3300 lbs to 4400 lbs. This difference due to moisture may add by freight as much as 50 cts. per cord to the cost at the mill. Not unfrequently wood will be taken from the water upon which it has been driven and shipped to destination by rail. It may then contain as much as 60% moisture. So long as the pulp manufacturer pays the freight, little attention will be given to question of moisture by the shipper.

Second—The purchase by weight on an agreed basis of dryness will insure a delivery of real wood proportional to the price; whereas now, equal volumes will vary in substance according to density, and this varies as much as moisture, depending upon environment during growth, and in different species. Again we observe how unsatisfactory the present method is to the manufacturer who can make no accurate calculation of yield in pulp.

There are very serious obstacles to this method of valueing wood. It would be very difficult to change the long established custom. Owners of wood and woodlands would be thrown into confusion for a time and would hold back. Owing to the growing scarcity of wood manufacturers are obliged to concede a great deal to get it. There would be an added difficulty in paying the wood chopper, who is now paid by the cord. To be sure he might be paid by the day, but this is not the custom. It does appear feasible to me, however, that a considerable amount of money, now paid out to the railroads for hauling wet and green wood, could be saved to the seller and purchaser of wood, if they would get together and study each others mutual interests to divide this saving, by planning to reasonably season the wood before shipping.

So far I have only treated of the physical valuation of wood. If these views, or some modification of them could be made commercial, I am confident it would make for a more satisfactory understanding in this important industry.

There remains, however, the valuation according to the amount of fibre wood will yield, which is a very important consideration to manufacturers of chemical wood pulps. During the test above referred to a large amount of work was done to determine the amount of cellulose showing the effects of different causes in the life history of the wood to time of delivery.

I will defer further consideration of it till some future date.

An address before the Maine Section of the American Chemical Society.

Notes on the Sulphite Process

In a paper by Schwalbe contributed to the "Wochenblatt" some interesting notes are given on the chemical reactions involved in the sulphite cellulose process. The following abstract is from the "Journal of the Society of Chemical Industry":

In preparing bisulphite lye for laboratory digestion experiments, if milk of lime be poured gradually into an aqueous solution of sulphurous acid, previously titrated, a clear solution of known composition is obtained almost instantaneously. By operating always in presence of excess of acid, none of the insoluble calcium monosulphite is formed. On an industrial scale this principle may be turned to account for dissolving muddy deposits of lime and monosulphite found at the bottom of the lye tanks, provided these are comparatively fresh and not coarsely crystalline. Also monosulphite may be recovered from spent digestion lyes by neutralising with lime, and the sulphite so recovered may be utilized by dissolving in it aqueous sulphurous acid in which it is freely soluble.

In practice gas is blown off from the charged digester when the temperature reaches about 110°C., the object being to release the air expelled from the pores of the wood, in order to avoid the possible formation of calcium sulphate.

Analysis of these gases showed that, in quantity, they barely amounted to half the quantity of air originally present in the charge and, moreover, were entirely free from oxygen. Further, since the quantity of calcium sulphate did not appear to increase, it is to be inferred that the oxygen so disappearing is entirely absorbed by the organic matters of the wood. Incidentally it is noted that the calcium sulphate becomes unequally distributed between the lye and the wood, so that for its determination, both constituents of the charge must be extracted together by digesting with dilute hydrochloric acid.

Although the removal of the air has no effect in preventing the formation of sulphate, it is nevertheless extremely advantageous from the point of view of penetration of the chips. By blowing off the gas, the product is far more evenly digested and freer from splinters. The ex[illegible] at 110° C., however, causes loss of sulphur dioxide and, since calcium bisulphite is relatively stable up to a temperature of 70° C., the author considers that blowing off the gas at this temperature would be just as effective and more economical than at 110°C.

Favored Nations Clause

Special to Pulp and Paper Magazine.

New York, November 13th, 1913.

According to current reports a bill will shortly be introduced into congress providing for an appeal to the United States Supreme Court from the decision of the Customs Court in regard to the "most favored" Nation refund case. The Treasury Department which has been ordered to give up $3,000,000 in back duties on pulp and paper imported into the country since the passing of the Canadian Reciprocity act on July 26, 1911, is undoubtedly back of this movement, as well as the Department of Justice. If this bill is enacted the celebrated wood pulp cases will be reopened, and importers of this country will have another long fight ahead of them for their rights.

The Payne-Aldrich tariff act which created the Customs Court provides that its decisions shall be final. Repeated efforts on the part of attorneys to have the Supreme Court pass upon decisions of the customs tribunal have failed. The desirability of amending the existing law so as to permit a review by writ of certiorari has long been urged by lawyers representing the importers and the Government. Some of the rulings of the Customs Court have been the subject of considerable criticism, and it has been charged that the court has in one or more instances, undertaken to practically overrule the Supreme Court by refusing to be strictly bound by its ruling. In order to avoid one specialized tribunal from rendering opinions not in harmony with Supreme Court decisions it is felt that provision ought to be made in the law by which the highest court in the land could be resorted to in the event that the situation demanded it.

It will be recalled that prior to the establishment of the Customs Court the decisions of the Board of United States General Apraisers were reviewable by the United States Court and the United States Circuit Court of Appeals, and that in cases where the appellate courts of two circuits disagreed on a particular issue, a writ of certiorari would be obtained and a final adjudication had by the United States Supreme Court. The purpose of doing away with this procedure and transferring all this litigation to the Customs Court was to free the Supreme Court of some of its work, and at the same time reduce to a minimum the delay in getting final rulings in customs cases.

While the Underwood-Simmons tariff was under discussion a suggestion was made that provisions be made in the new law giving the importer and the Government the option of having appeals from decisions of the general appraisers by the Customs Court or any of the Circuit Courts of Appeal. Many objections were advanced to this plan, and it was not adopted, notwithstanding the fact that the proposed amendment carried with it a proviso regarding a review of decision by the Supreme Court.

Lawyers in this city who have heard of the plans for the introduction of a bill, referred to above, said yesterday that they would welcome such legislation. The court, they said, could exercise a restraining power over persons who sought to bring before it any and every customs case by refusing to grant writs of certiorari. In other words, appeals to the Supreme Court would be regarded as a privilege and not as a right, and the Court would hear only such cases that it deemed of sufficient importance to warrant its passing upon them.

The Canadian Fairbanks-Morse Co. have issued the catalogue of Orenstein-Arthur Koppel Co., manufacturers of logging machinery, cars and rails. The sales of their product are controlled entirely in Canada by the Fairbanks Co.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine.)

The steamer Aagot arrived at Portland, Me., on November 1st with her last cargo of pulp wood for the season from Dalhousie, N.B. The steamer Appenine will make but one more trip from Chatham, after which the only importation of pulp wood for the International Paper Company will be those coming from Bridgewater, N.S., and only one steamer is now under charter from that port. The receipts of pulp wood from the provinces this season are considerably less than those of 1912, the figures for that year being nearly 100,000 cords, it being a record season.

* * * *

A fire in the plant of the Interlake Pulp and Paper Company, at Appleton, Wis., last Sunday morning was discovered just in time to prevent what surely would have been a big property loss. The explosion of an incandescent bulb is believed to have caused the blaze, which started in the ventilator over one of the paper machines. An alarm was turned in promptly, but the company's department had the blaze under control before the city firemen arrived. The loss is very small.

* * * *

Vitale & Rothery, forest engineers, of 200 Fifth Avenue, New York, have been retained by the Canadian Government to advise with the Canadian Conservation Commission in planning the survey of the crown lands in the Province of New Brunswick, for the purpose of estimating their timber resources, drafting appropriate conservation laws, etc. This work will probably be the largest timber estimate ever undertaken on scientific lines. Julian E. Rothery and Clyde Leavitt of Ottawa, a member of the Conservation Commission, are now studying the problem and traveling through New Brunswick. The survey and estimate must be completed before the end of 1913.

* * * *

The certificate of incorporation of the Colonial Board Company, incorporated .of Manchester, Conn., manufacturers of paper and paper board has been approved by the secretary of the State. The capital stock will be $50,000. of which $3,000 is paid in. The incorporators are Frank M. White, Bernard L. Bigelow, William M. Wallace, William Foulds, Jr., and Charles A. Balch.

* * * *

Announcement has just been made that the reorganization of the United Boxboard Company and the formation of the United Paperboard Company has been completed. A circular which has been mailed to stock and bondholders says in part: "We feel confident that the Paperboard Company will be able to continue its business profitably, and we take pleasure in stating that its net profits for the three months' operation amounted to over $76,000. The directors have authorized additions and improvements at many of the mills and are confident that upon completion of same the earnings can be increased. We believe that during this first year of operation the company will show earnings which will indicate its ability to conservatively commence the payment of dividends at the rate of 6 per cent. per annum on its preferred. The income for three months to August 30, shows: Gross earnings, $144,093, Less: Repairs and improvements $35,521; taxes and insurance, $8,834 general expenses, $15,969, total $60,325. Net earnings, $83,767. Total income, $86,970 deduct: interest charges, $9.741. Net profit, $76,229.

The annual meeting of the Empire State Forest Products Association, was held in New York City on November 13, in the meeting rooms of the Merchants' Association, Woolworth Building, Frank L. Moore, the president of the Newtom Falls Paper Company, Newton Falls, N.Y., is president also of the association. Many papers were read on this occasion that were of direct interest to the paper manufacturers of New York State.

* * * *

The last of the drive of short logs which was started from the headwaters of the Connecticut River last May reached Bellows Falls during the past fortnight. The drive contained 1,800 cords of spruce wood bought by the International Paper Company of the Connecticut Valley Lumber Company. Foreman Nichols, who has had charge of the drive since it left the headwaters, reported it had been the hardest season for driving he has ever seen on the river on account of the low water that has prevailed for the past four months. At one point on the river they only advanced one mile in sixteen days.

* * * *

W. W. Jones, of Spicer Bros., Ltd., and W. A. Foster, managing director of Arnold & Foster, Ltd., both of London have been spending some weeks in this country, being at the present time in Canada. They expect to return to New York this week. Arnold & Foster, Ltd., are the largest manufacturers of handmade drawing papers in England and their product is especially adapted for fine printing. The concern enjoys a very good business in Canada and it is quite likely that their product will, in the near future, become better known in the United States. Spicer Brothers Ltd., are likewise large manufacturers of handmade writing account book papers, drawing and parchment papers, handmade printings, etc.

* * * *

The Elkhart Paper Company has just started operating its new power plant which is said to be the biggest one possessed by any paper mill in the State of Indiana. The mill is driven by power furnished by the company. Heretofore the company has been forced to purchase the power to operate the plant, but as this was proving to be a pretty expensive matter, Engineer Dan J. Albertson, of Kalamazoo, was secured to prepare plans and specifications for the new power plant, and the officials of the concern are delighted over the showing it has made in the brief time it has operated.

* * * *

The production of Spruce in Northern United States and Canada was considerably less during the past summer that it was the year before. Though while under existing conditions there are apparently ample Spruce stocks for current needs, a slight increase in consumption will undoubtedly, witness the highest prices at which spruce has ever sold. In commenting on this situation The "New York Lumber Trade Journal" in its last issue says: "A prominnent Canadian operator was recently interviewed on the subject of Spruce, and stated that the total production of Spruce in Maine, New Brunswick, Nova Scotia and Quebec was 200,000,000 feet less this past summer than the year before. The large decrease was due primarily to the mild weather prevailing during last winter's logging season, the large number of logs held up on the streams last spring on account of low water, and the fact that six or more mills with a substantial aggregate capacity had been destroyed by fire. In addition, the St. John mills were closed for the greater part of the summer sawing season on account of strikes.

"We have already published reports to the effect that the log cut in some Eastern sections will be reduced this year, but this fact is undoubtedly due to the anticipation on the part of some of the larger manufacturers that they will be able to get down spring the logs held up this year.

"Such a large curtailment in production would have been seriously felt under ordinary business conditions, and while spruce has not been over plentiful during the past season general conditions have tended to minimize such a large discrepancy in supplies. It is also extraordinary that so many important factors should have combined in any one year to curtail production in a given district, but aside from these facts, it is well understood by those familiar with the spruce situation in the Eastern district, and, in fact, in West Virginia and at Northern points, that with the increasing demands of the pulp and paper industry upon spruce supplies, as before stated, with a resumption of anything like normal conditions, spruce is going to bring higher prices than has ever been experienced in the past.

"As to next year's supply in the Eastern Fields it is too early to arrive at conclusions as to the amount of logs which will be available at mill points will naturally, depend upon the weather prevailing during the logging season."

Ontario Forest Problems

(Special to Pulp and Paper Magazine).

Ottawa, Ont., November 16th.

An important address dealing principally with Ontario's forest problems was delivered before the Canadian Club of Ottawa last week by Hon. W. W. Hearst, minister of lands, forests and mines for this province.

After dealing with the importance of the timber industry in Canada as a whole Hon. Mr. Hearst went on to point out that the forest reserves of Ontario contained 20,000 square miles on which was grown nine and a half billion feet of pine, twenty million cords of pulpwood and two million cords of spruce. Defining the policy of the Ontario government Mr. Hearst stated: "In the older portions of Ontario agriculture has gradually encroached upon forest lands so we have at present only nine per cent. of somewhat inferior woodlands. There is in the old settled portion of Ontario an aggregate of about 8,500 square miles of farmers' woodlands. There is in addition to the assessed woodland, another area of 8,500 square miles which is suited only to forest growth. This means that Southern Ontario will eventually have over ten million acres of privately owned woodlands. To show the difficulty of reaching the private woodlands owner and his lack of interest in the question. In 1906 an act was passed to provide for the exemption of woodlands from taxation. This act empowers municipalities to pass bylaws whereby any owner may hold one-tenth of his acreage in woodlands without taxation and no owner to be exempt on over twenty-five acres. So far as I know public opinion has not been strong enough in any municipality to demand the passing of the bylaw.

"A forestry department was started at Guelph in 1905 to carry out an educational policy in regard to the problems in older Ontario. This department acted as a bureau of information through correspondence, lectures, public bulletins, etc., for those desiring knowledge in regard to the care of woodlands. This department has been transferred and made a central forestry branch in connection with the Department of Mines, Forests and Lands. We have legislation enabling and assisting both private individuals and municipalities to carry on forestry work. In regard to reforestation we believe that artificial reforesting is at present only applicable to the older parts of Ontario. Much of the north country is being reforested naturally and our efforts at present will be to regulate cutting operations so that future crops of timber will be assured. The protection and proper management of these areas not only influence our future revenue but also control and safeguard our future water supply in relation to navigation and power. When we see the struggles going on in many of the states across the line to recover title to their forest lands we begin to realize the enviable position in which we stand."

The minister then went on to speak of fire protection and made the interesting announcement that telephone lines and lookout stations would be established in all Ontario reserves in the near future.

Ottawa Notes

(Special to Pulp and Paper Magazine).

Ottawa, Ont., November 13th.

On account of the satisfactory condition of the car situation the increase in car demurrage rates allowed by the Railway Commission last year from December of 1912 to March of 1913 wiil not be put into effect again during the coming winter. Assistant Chairman Scott of the Commisssion made this announcement to your correspondent. Last year's increase from the flat rate of $1, he said, had been an experiment to prevent shippers from holding cars too long and had succeeded admirably. This year, however, the Commisssion had so far received but one complaint of car shortage, and that from Saskatchewan and on this account demurrage rates would not be again increased. The Railway Board is now dealing with the whole question of demurrage but its decision will not be reached for a lengthy period yet.

The ravages of forest insects in British Columbia were referred to in an interview given out here by Dr. C. G. Hewitt, Dominion entomologist, recently. He stated that in some areas timber and pulpwood to the extent of 25 per cent. of the crop had been destroyed and as a result the Agricultural Department is investigating with a view to immunizing forest growth to these pests or exterminating them.

An important subject for consideration at the conference of provincial premiers held in Ottawa recently was the question whether the prairie provinces of Alberta, Saskatchewan and Manitoba should be given control of their natural resources including timber lands, now vested in the Dominion Government. As the question is more or less of a political one in the West it was not taken up at the conference proper but was talked over between Sir Rodmond Roblin of Manitoba and Premiers Sifton and Scott of Alberta and Saskatchewan and Rt. Hon. R. L. Borden, premier of Canada. No definite conclusion was arrived at but the provinces were finally asked to put their request in writing when it will be considered by the government. Although Alberta and Saskatchewan have not a great deal to boast of as regards forest growth Manitoba's areas are considerable.

That there is no longer on the statute books of the United States a law offering reciprocity in natural products to Canada is the opinion in Dominion Government circles. It is held here that Section S of the Underwood Tariff bill cancels not only the wood pulp and print paper clause of the Reciprocity Act, which automatically became operative when passed, but also the remainder of the provisions of the measure, which were not to go into force unless the Canadian Government reciprocated. This will have an important bearing on any measures of tariff reduction which Canada herself may desire to put in force.

Mr. John R. Booth has denoted the funds for a new wing for St. Luke's hospital in this city which is being built at a cost of $125,000, it was announced last week. This is not the first occasion on which this hospital has benefited from the millionaire lumberman's charity.

Birch as a pulpwood receives some attention in a recent bulletin issued by the Forestry Branch here, "There are three species of commercial birch in Canada, the black, yellow and the white, or paper birch," says the bulletin. The former two are confined to Eastern Canada whereas the paper birch is found in every province of the Dominion, ranging to the limit of tree growth towards the North and growing well within the Mackenzie River basin and the Yukon. The only objection to birch as a pulpwood is that it is too heavy to be readily floated down the streams to the mills."

BOOTH'S NEW SULPHITE MILL.

(Special to Pulp and Paper Magazine.)

Ottawa, November 15th, 1913.

The J. R. Booth Company is adding to its sulphite plant here by the installation of two new digesters which will materially increase the capacity of the mills. The new machines will be housed in a separate building which is now well under way. It will be of concrete construction and as usual will be built by the Booth firm itself. It has long been the Booth practice to prepare its own plans and carry out its own construction work and the new plant will be no exception to the rule.

The digesters will be Manitowoc ones and will have a capacity of 50 tons per day. The present capacity of the sulphite plant is 70 tons so that on the completion of the new additions the Booth firm will be turning out 120 tons of sulphite pulp per day. Its production of mechanical pulp is 105 tons per day.

C. J. BOOTH SPEAKS ON TARIFF.

(Special to Pulp and Paper Magazine.)

Ottawa, November 14th, 1913.

The new Underwood tariff is apparently not making a great deal of difference in Ottawa paper trade circles. Discussing its effect with your correspondent Mr. C. J. Booth stated that as his firm had always bought its wood from private lands the new schedules were not making much difference, to them. About its only effect, as far as he could see, was to equalize the difference which formerly existed between mills which used Crown land wood and others which had access to privately owned timber lands. The Booth firm has for some time past been selling newsprint in the Chicago market and is doing more business of this kind all the time.

That Canadian mills would have to get better prices for their paper than they have been doing was the opinion expressed by Mr. Booth in discussing the market. The hot water into which Spanish River has got itself is taken as a case in point of the difficulties with which the manufacturers are contending in trying to meet present day prices in view of the low water and the slackness of trade during the past summer.

Belgo Canadian Pulp & Paper Company have decided to instal a Board Machine immediately and a News Machine next year. The Sulphite Mill will be in operation during the coming winter.

MR. ACER SAYS HE IS ALL SOLD UP.

"At least 100,000 tons more Canadian newsprint paper will go this year into the States than in 1912. The market for Canadian papers is a good one in the States, and the removal of the duty on newsprint paper has already been anticipated, and orders placed long in advance for present delivery. The building of new Canadian mills has also been largely in anticipation of the bigger market in the States for our product and Canadian mills will be able to easily fill additional orders. In fact it is doubtful if Canadian mills have not already overdone it, and prepared for an actually larger output than is required from them. Though it looks as though the extra demand for Canadian paper due to duty removal and consequent cheaper prices in the States, would keep all the present Canadian mills busy; and things will be all right provided no more mills are built over here just now." In the above words Mr. J. H. A. Acer, treasurer of the great Laurentide Co., gave his opinion of the general effect of the new paper tariff upon Canadian production.

Laurentide's Mills Busy.

As far as his own company was concerned, Mr. Acer said that they were operating at capacity. "Our ground wood pulp output and sulphite is all sold up to the end of 1914; and board and paper are closely contracted for. Prices, too, are good." The Laurentide Company is now turning out over 320 tons of pulp and paper a day.

Mills Will Take 12,000 H.P.

The power development is already well advanced, and the amount of work accomplished has come quite up to expectations. From 800 to 1,000 men have been at work, and rockwork and concrete pouring has been hurried along. The power development will be finished by late spring or early summer when 100,000 electrical horse power will be available.

At present the company is getting 2,000 electrical horse power from the development and the rest of the mills are run hydraulically. When the new power house is ready the machines will be completely changed over to electrical energy and henceforth run only this way. It will take about 12,000 h.p. to run the company's mills, which will leave about 88,000 h.p. electrical energy to sell.

Officials of the company look for big things from the power development, and foresee big profits from this branch of the bnsiness.

NORWEGIAN PULP MENACES CANADA.

Importation of Foreign Pulp 99 per cent. Free.

There has been considerable unfavorable criticism recently on the importation by Canadian paper companies of Norwegian pulp for manufacture into paper intended for export to the States. Pulp firms claim that it is unfair to home industries to permit the importation of these cheaper pulps practically duty free, and claim that if something is not done the Canadian pulp industry may be seriously affected. So much are some firms concerned that it is said that Parliament will be asked this coming session to introduce some sort of protection against invasion by foreign pulps.

The immediate cause of the trouble is the arrival of a cargo of sulphite pulp from Norway. This was consigned to the Ontario Paper Co., Limited, at Thorold, Ont., a mill which manufactures about 100 tons of paper a day and is owned by American capitalists headed by Madill McCormack of Chicago, owner of the Chicago Tribune. This is not the first shipment of Norwegian pulp which this company has received; and it is estimated that although the quantity so far imported into Canada is not very large, it has totalled at least 6,000 tons of sulphite pulp in the past twelve months.

The Canadian workingman is even more seriously affected Not only does anything which jeopardises Canadian industry make it harder for the laborer to get a living, but in this case it is especially hard as the greatest proportion of the work of manufacturing paper is taken away from him The actual manufacture of the paper from prepared pulp is a very small part of the total labor involved, and has been estimated at around one-tenth. While the labor involved in the preparation and manufacture of pulp is many times as great. So that a greater number of workers are concerned than if it were the other way round and papermaking and not pulp manufacturing were in jeopardy.

The situation is really more serious than most people suppose. Canadian pulp manufacturers will be up against it if Norwegian pulps continue to be imported duty free. Of course the Norwegian product at the present time is lower in price than usual and the present extremely low prices may not always obtain. Even so. this importation of practically free foreign pulp is a distinct menace to Canadian trade. Pulp manufacturers are quite stirred up about it and feel that the Government should do something and that immediately to protect this home industry.

That the market abroad is unusually poor just now for Norwegian and foreign pulps can be judged from the fact that one of the largest Norwegian mills has for some time past been seriously considering closing down. Profits from most Norwegian mills have been very low these last few years. And it is not surprising that they should attempt to get a foothold in Canada. What action the Canadian Government will take is problematic, but it is to be hoped that it will be consistent with fair treatment to both pulp users and the Canadian manufacturers of sulphite pulp.

Oiling and the Oil Bills

A Pulp and Paper Company where the oil bill was considered normal, received an offer from an Oil Manufacturing Company to cut down the cost of oil 40 to 50 per cent. if their oil were used and the instructions of their oil expert followed.

A one-year contract was opened upon and the Oil Company sent their oil and their expert. The price of the new oil was about three times as much as that of the oil previously used. This meant that the consumption of oil had to be cut down to about 20 per cent. of the oil used before.

It soon became evident that some of the experts instructions risked the life-time of certain bearings and his instructions were therefore partly disregarded. However, at the end of the year the oil bill was about 20 per cent. lower than the year previous.

The manager now decided to revise the instructions given by the expert and use the old kind of oil and at the end of the second year the oil bill was down to about 50 per cent. and was kept there without visible injury to the bearings.

The oil consumption and the possibility of saving oil is in most cases given little or no attention as it is such a small item in the cost sheet, but every cent counts. There is no doubt that the oil bill could in most mills be brought down considerably if proper instructions were given to the different departments and men using oil and proper apparatus supplied for handling and supplying the oil.

Those instructions, however, should be of the nature not to risk the life time of the bearings and the oiling should be properly supervised, otherwise the instructions will do more harm than good.

The saving of oil starts with the purchase of bearings and shafting. Machine finished shafts supported by long, ring-lubricated, cast iron, pivot bearings take very little oil when once worn in; it should not be necessary to refill the bearings more often than every four months.

Cold rolled shafts supported by metal lined bearings are quite as expensive as machine finished shafts and cast iron bearings and will cost much more in repairs as the lining wears out quickly.

On bearings where the pressure is large "Stauffers" grease cups and "pure fat" should be used and the "pure fat" should also be used for open bearings like on pressrolls, beater shafts, but the bearings should be covered by a thin cap to prevent dirt and dust to mix with the grease.

"Hard solid oil" should be used for bearings supporting heated journals like paper machine dryers, calendar rolls, etc., but only the very best quality should be used as only grade "hard solid oil" melts very quickly, consequently costs more and the oil is apt to make trouble in the run of the machines.

Oilcans should be kept in good repair and for oiling small bearings there should be drip cans in order not to waste oil.

Two or three kinds of oil are sufficient for any plant and in large works the oil should be bought in tank car lots.

An efficient oil fitter is a necessary outfit for every mill, also oiltanks with pumps and drip pan.

Filtered oil should be just as clean as fresh oil and should run just as long as new oil in ring lubricated bearings.

HOW SAMPLES OF THE LYE SHOULD BE OBTAINED FROM SULPHITE COOKINGS.

Probably every chemical pulp maker is convinced that the lye is fully utilized in his works, but this is frequently a great mistake due to the samples being improperly obtained. Generally the lye is run off from the try-cock into a copper beaker or a glass vessel, cooled slightly or not at all and then titrated. The SO_2 has, however, the property when heated or agitated of being changed from the liquid into gaseous form, and as the test of lye is agitated and heated very greatly when drawn off, the SO_2 for the most part escapes and cannot be found when titrating. If a digester whose total contents of SO_2 amounts to $3\frac{1}{2}$—4% is heated up to 100°C, without letting off gas hardly more than a total of SO_2 amounting to 2% will be found.

Therefore if it is wished to determine the correct percentage of SO_2 in the lye connect to the try-cock an india-rubber tube or a leaden worm and thin piping, whose end is provided with a cock, and place the worm in cold water. Then run off the lye cold, titrate the same, and it is surprising to find how strong the lye still is. Consequently the sample must be obtained in such a manner that the gas cannot escape, and then titrate the cooled lye.

TO USE PAPER CUPS FOR SODAS.

Individual paper soda glasses at soda fountains in Kansas City, Mo., soon may be substituted for the crystals. Considering the time required to carefully clean the glasses and the breakage, the paper cups at a reasonable price will be about an even break for proprietors and there is no question but that the paper glasses are more sanitary.

The Donnacona Paper Co. are building a Sulphite Mill as well, which will be in operation in the Spring. They are at present being supplied by the Riordon Pulp and Paper Co. Their plant will manufacture eighty tons of ground wood, which is sufficient for two machines, so that the surplus for the plant will be on the market. It is quite certain, however, that they will have to add another machine very soon.

BRITISH TRADE NEWS

SPECIAL TO PULP & PAPER MAGAZINE

London, November 8th, 1913.

By a contract in writing, dated December 28, 1911, Messrs. Peter Dixon & Sons, Ltd., paper manufacturers, Grimsby, agreed to buy 30,000 tons first quality fresh hot ground 50% unwrapped mechanical pulp. equal to Byafossen Collet or Folla (Norwegian) at 45s 6d c.i.f. (about $10.80). In the following April the Agents from whom the pulp was bought, viz.: Messrs. Henderson, Craig & Co., Ltd., London, notified Messrs. Dixon that they intended shipping to them "against this contract of about 1,200 tons Lottefors first quality." Lottefors is the name of a Swedish mill and there was no specific mention of it in the contract. The buyers Messrs. Dixon declined to accept Lottefors pulp on the ground that it was not suitable for the class of paper they made, and also Lottefors they said was not equal to one of the three brands specifically mentioned in the contract. It has also transpired that in November 1912, a delivery of Lottefors pulp made under the same contract had been objected to by the buyers as it was not equal to the standard contracted for. This dispute was referred under the contract note to arbitration and the arbitrators decided that the delivery was "not a delivery reasonably equal to contract" and awarded Messrs. Dixon an allowance of 72 cents a ton. In April, 1913, the agents wrote Messrs. Dixon regretting that they refused Lottefors and gave notice that they would be obliged to selll the parcel and claim the difference (if any) and all charges which might be incurred. The buyers adhered to their decision to refuse all Lottefors and arbitration proceedings followed. Mr. C. R. Seddon, a well known paper mill man in Lancashire was Umpire with two arbitrators. The arbitrators investigated the circumstances and as they could not agree the Umpire was called in and he has now stated a case for the Divisional Court of the Kings Bench in which he asked the judges guidance on (1) whether the buyers were entitled to reject the consignment before arrival at Grimsby; (2) whether the buyers are entitled to, or whether the Umpire had any discretion to make them an allowance for inferior quality; (3) In view of the fact that the consignment had not been sold by sellers against the buyers or at all (a) on what principle was the Umpire to levy damages (b) on which party should fall dock, demurrage and other charges? Messrs. Henderson, Craig & Co., contend that Messrs. Dixon added a stipulation to the contract and refused Lottefors while at sea which they had no right to do. The three judges of the court decided that the parcels were not reasonably up to the Standard contracted for; that the Umpire could hold that the buyers were right and even reject the pulp or make the buyers an allowance according to the extent of the divergence from the contract description. When the Umpire had dealt with the questions numbered 1 and 2, if he felt any difficulty in arriving at the amount the damages should be, he could again consult the court for guidance. The case has aroused considerable interest amongst British pulp men and the court was well filled by them listening to the arguments between the lawyers and the three judges.

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Sometime ago the paper mill of Messrs. Charles Marsden & Sons, Barnsley, Yorkshire, was burnt down and the work of construction is now commenced. Messrs. Bentley & Jackson, Ltd., papermakers, engineers, Bury, Lancashire, have received the order of refurnishing. This includes the construction of a new 112-inch paper-making machine and the econstruction of one machine which was not completely destroyed by fire, in addition to making all the preparatory plant.

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Messrs. Erikson & Grant, wood pulp importers, 73a Queen Victoria street, London, announce that they have dissolved partnership by mutual consent and in future the business will be carried on by Mr. Erikson himself. Mr. Grant goes to that very successful paper mill, the North of Ireland Paper Mills Co., Ltd., at Ballycare, Ireland, where he will take over the management, a position he formerly occupied. A friend of Mr. Grant's said the other day; "He is giving up the new love and going back to the old one." Mr. Grant spent his time when in the pulp trade in the North of England and he was extremely popular amongst the pulp men in Manchester, so much so that they are going to make him a handsome presentation and entertain him socially. He was always a good colleague and a good business man.

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Canadian pulp continues to arrive in large shipments at the English ports. Newfoundland is also sending large parcels. These shipments are a source of great gratification to papermakers generally, amongst whom the pulp is very much liked. Canadians should remember that as a rule large contracts, sometimes covering two and three years, are entered into by the British papermakers and this market is well worth giving a little more attention to. Scandinavian competition of course, will have to be contended with, but the English paper men are not difficult to please so far as Canadians are concerned, because of the imperial relationship and the present large consumption of Canadian and Newfoundland pulp may be looked upon as a precursor of what is to follow. Canadian paper men may also have a hint or two so that they may give the British market a little more attention than they do. There is a tendency now for English buyers to ask for paper having the characteristics of American and Canadian paper for "news" offices. It is very firm to handle and gives the printed matter a very bright, clear appearance, which arises from the fact that having a very hard finish the ink has to dry on the surface instead of drying into the paper. The English-made paper is looked upon as too soft. A paper-maker here, however, says that for many years past the English printers have been crying out for a soft, kindly paper that would take the ink well and dry quickly. The mills carried out this command, but now there is to be a change. Now it should be borne in mind that the demand for American paper here is simply due to the Canadian pulp it is made from and it is recognized as better than either German or Scandinavian. Therefore, there is a good opening for Canadian paper, but push and publicity is wanted at the back of it.

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The National Union of Paper Mill Workers of Great Britain and Ireland are going to adopt American tactics. At the last quarterly meeting the executive council decided that steps were to be taken at once to secure complete and up-to-date lists of wages and hours worked at all Union paper mills and in connection with same the Union was also going to adopt a registered label and open negoiattions with the public authorities with a view to getting them to nsist upon the trade union label being on all paper they bought. The label will only be issued to firms which recognize the National Union of Paper Mill Workers and its objects. This all sounds very nice and reads very nice in cold print, but one may ask the question: "Who is going to push this label in English firms and what will be done as regards the tons of Scandinavian paper that reach the British market?" Very likely the Paper Makers Association will have something to say on the subject when they meet on November 11th, but it may be fully anticipated that the scheme is unworkable and will not be listened to by the mill owners. It is then open to the union to rouse trouble with its 1,500 members.

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On November 26th, the annual meeting and annual banquet of the British Wood Pulp Association will be held in London. A large gathering of pulp and paper men from all nations is again expected this year.

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The Wall Paper Manufacturers, Ltd., announce that the profit for the year to Augsut 31st, amounted to £189,674. After payment of dividend, etc, and an interim dividend of 2% on the ordinary shares they pay a final dividend of 3%, making 5% for the year, placing £50,000 to the reserve fund, increasing it to £500,000 and carrying forward £80,725. There are thirty firms combined in this company with works in France, Germany and England.

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An application for an order of discharge was made in the London Bankruptcy Court by George H. White who failed last May with provable debts totalling £23,500. In 1901 he was interested in timber property and water power in British Columbia and four years later formed the Western Canada Pulp and Paper Co., Ltd., with a capital of $1,920,000 to acquire his interest. The matter was not proceeded with and the bankrupt lost $25,800 over the undertaking. He was also interested in the formation of other companies. The court has now suspended the discharge for 3 years from the date of the bankrupt's public examination.

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Since the strike of China Clay workers, English producers have decided to use labor-saving machinery. In a number of mines hydraulic hoses for mechanically washing the clay out of "stopes," in place of the present use of manual labor, will be used. It is also announced that the China Clay jetty at Fowey will be extended by 342 feet x 49 feet to meet the growing trade of the industry.

MANUFACTURERS' NOTES.

The Town of Aurora, Ontario, has decided to install an equipment of motor driven turbine pumps for protection against fire. It will include two four stage high lift turbine pumps of Mather and Platt design, built by Canadian Allis-Chalmers, Limited. Each of these fire pumps will be capable of delivering four hundred imperial gallons per minute, against a total head of 325 feet, operating at 1460 B. P. M. They will be direct connected at one end to an alternating current motor, and at the other end to a direct current motor in order to conform with the Underwriters' requirements that there must be two distinct sources of power for this purpose. The electrical apparatus including a four panel switchboard will be built by the Canadian General Electric Company, Limited.

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The new G. T. P. floating dry dock at Prince Rupert, B.C., will be one of the largest and best equipped in the world, and will be electrically operated throughout. The contract for the electrical equipment which has been awarded by the G. T. R. to the Canadian General Electric Company, Limited, includes two 200 H.P. and four 100 H.P. variable speed induction motors, with full automatic control, for operating the pumps on the dock. The power will be produced by two 1250 K.V.A. Curtis steam turbine with complete condensing appratus. The exciters for the main turbine-generators will consist of three 35 K. W. turbine driven generators, and one motor generator set. The foundry, machine shops, and ship yards will be equipped with motor driven tools, requiring motors ranging from 60 to 10 H.P. The contract for electrical equipment also includes all necessary power and light transformers.

LOCKWOOD'S 1914 DIRECTORY NOW OUT.

The thirty-ninth annual edition of Lockwood's Directory of the Paper, Stationery and Allied Trades is now off the press. The 1914 edition has been thoroughly revised and improved in many respects. The most notable change is in the division of Watermarks and Brands, the matter being reset in two columns to the page instead of one as heretofore. The titles appear in a small clean cut, black faced type, which makes it easy to find any name one happens to be in search of. The list of Watermarks and Brands printed in this year's Directory is the best compilation of titles in active use.

The department of Paper Specialties, which was added for the first time last year, has been enlarged to the extent of five pages, many of the new converters of paper being included in this list. While these are the most notable change in the book, the revision of the other lists is none the less important, as hundreds of changes have been made in the text matter of each department. In the mill section, for instance, those plants that have gone out of business have been dropped and their cards cut from the classified list of "Mill Products." All the new mills have been added and their products properly listed. These elisions and additions, together with the many changes in the old mills, bring this section thoroughly up to date and render the possession of the new directory an absolute necessity for those who would have the latest information.

More revision and improvement have also been made in the division of Wholesale and Retail Stationers than in any previous year, and the publishers can now say that this part of the Directory contains the best list of representative Stationery concerns in existence. In it all sections of the country are well represented.

Orders for the New Directory can be filled immediately Address Lockwood Trade Journal Company, 150 Nsasau street, New York. Price, $3.00.

GREY BOARDS FROM WASTE PAPER.

When it is required to make grey boards that must shrink as little as possible across the web, from old paper, the pulp must not be too greasy. The greasier it is, the more the tendency to shrinking in drying, and to expansion on wetting. The charge of waste in the pug mill must not be too heavy, and to prevent the necessity of long grinding in the mill, which makes the pulp greasy, the waste should be previously soaked for some hours in cold water, whereby at least a third of the time otherwise necessary in the pug mill is saved. Hot water should not be used for the soaking as thereby size and fillings are removed which have afterwards to be placed. On leaving the pug mill, the whole stuff has only about ten or at most fifteen minutes in the hollander with rather blunt knives. The charge of the hollander should also be small. A short passage through the Jordan mill is often useful before the stuff goes to the stuff chest. If a cylinder paper machine is used, the speed should be low. The press rolls must take out the water gradually, and the format roll must be heavily loaded, but must have a thick wooly felt to prevent distortion. The best method of drying is the conduit system with a plentiful current of not overheated air. By this method the cross-shrinkage need never exceed 5 per cent., and it can be brought down to 4 per cent. by careful working.—(Papier Zeitung.)

NOTES ON THE MANUFACTURE OF PAPER AND PULP

By LEO. SCHLICK, M.E.

IN FOLLOWING up comments on the paper import and export trade, we find for instance besides others the following comments in "The American Press". "Although paper imports into Japan are increasing it is disappointing to find that supplies from the United States are decreasing." The statistics show that Germany is the main exporter to Japan followed by the United Kingdom, Austria-Hungary, Sweden and the United States.

If the depression of the present paper market is caused by the depression of the money market, if the demand for American and Canadian papers is less than before, or if the tariff has been influencing the sales conditions over here, these are not the points I am referring to. It is the lowest cost of production.

There are several German concerns paying dividends of 20% and 30% this year, although the price of the Russian wood increased from $3 per festmeter to $4. There are also Scandinavian concerns, paying very good dividends etc., although they are exporting and competing with the United States and Canada, countries of large resources and aboundant and cheap water powers, and yet the Europeans are able to sell at a lower price than we can here, though the Germans have no large water powers.

Many German newsprint mills are compelled to grind their pulp by steam, to import the wood from Russia, to import the sulphur from Italy, to transport the coal and other raw material. In comparing German wood prices with Canadian prices for instance we find 1 festmeter of Russian wood imported into Germany is $4, equal to about $9½ per cord, while Canadian manufacturers with their own timber limits have same much cheaper, say $7 to $8 per cord. The rate for steam horsepower in Germany—same varying considerably is 0.025 marks per horsepower an hour—equal to approximately $43 per annum. One other item is labor, an average $1.60 per day of last year in the United States whilst it is now higher. In Germany it is $3.00 to $3.50 marks per day for common labor.

Let us make a comparison about the cost of 6,000 horsepower and 400 workmen:—

Canada—6000 electric horse each $13 (Niagara Districts) per annum...	$78,000
400 workmen, $1.80, per 300 days.........	+216,000
	=294,000
Germany—6000 Horse Steam $43............	258,000
400 workmen...........................	+100,800
	=358,000

It is of course hardly possible to compare concerns in above way as the interior organization of the companies has a large influence on the dividends. We should, however, not use the excuse that Europeans have cheaper labor, and that this is to their absolute advantage. However, one great advantage that the European manufacturers have is the assistance of the science.

It is far from me to say that our Canadian and American science is not as good as the European—this being beyond my knowledge. It must, however, not be misunderstood, that those European scientists, employed and supported as far as the means of the Government ever allow or not allow it, have cleared many wrong ideas. In fact, European papermaking concerns are paying prices for certain improvements, or support financially the modern science.

So it comes that the rosin sizing has been largely improved, that the manufacture of sulphite and sulphate has been put on a scientific basis, and that last but not least the manufacture of pulp and paper has been thoroughly investigated and the old thumb rules of our parent papermakers have been eliminated. If I dare to point this out, I want to critizise as improvements never took place without criticism. I don't want to say that the above is beyong the knowledge of our engineers but I will say that either the means of the concerns did not allow it or that the price of the wood was so low, that it was not deemed necessary.

Some time ago I read that an American manufacturer had visited European mills and found an astonishing cleanliness, and an astonishing system in the mills he had seen. This being, however, not astonishing to Europeans at all. Let me point out the principles of European manufacture:

(1) To reclaim as much waste and heat as possible.

(2) To get as much paper out of our wood as possible.

(3) To cut down the number of hands employed as far as possible.

Waste and Heat.—Two words about which volumes have been written, and still you see thousands of dollars of waste pulp running in our rivers, waste heat representing thoussands of dollars unreclaimed. As long as the wood is very, very cheap, mills can stand this. But what later? "Apres nous le deluge?"

We must consider that every gallon of your white water carries away good fibres, having been expensively bought and prepared; that your ground wood mill is wasting wood by not reclaiming screenings and tailings; that you sin against your coal bill in not using economizers, tubular feed water heaters and modern steam saving arrangements. In fact none of the European mills could possibly exist without a modern arrangement to save all this, to reclaim. There are still steam engines running over here with 20 to 25 lbs. of steam consumption per horsepower and hour, an amount of which an European mill is obtaining 2½ times as much power. The same refers to the consumption of sulphite, consumption of rosin, consumption of bleaching powder and right use of waste paper, in the older mills.

In working up waste and old papers they are generally not boiled * or beaten up in beaters but repulped by means of large Kollergangs, having a capacity up to 8 tons per 24 hours. In boiling waste papers, a large loss of fibres occurs not, however, with the Kollergang. In using bleachers with worm propellers and proper tubes, there is a large saving of bleach powder and labor against the old-fashioned bleacher types. Modern bleachers are dimensioned to take a whole carload of sulphite, sulphate or whatever it is.

In investigating these points properly in existing mills, you will find more than one point to be carefully considered and to be improved.

Because the modern paper maker has to have exhaustive knowledge of chemistry, mechanical engineering and practical paper making, there hvae been equipped special and expensive laboratories in European Universities, making as a rule, that every student has to have two years practical experience as a common laborer in paper mills after having visited college. Afterwards the students start as foremen in smaller mills and find their own way up if they have the capabilities.

——* Waste paper only boiled, if the printers ink has to be eliminated, and only in use where large quantities of such papers are to be used.

Nowadays, the days are past where a paper maker can understand fully the modern engineering and chemistry but the days have never come and will never come for an engineer or chemist to be a paper maker without having worked hard for several years from a laborer upwards in paper mills in order to obtain the necessary understanding of its delicate machinery. Of course, from the above paper makers have to be excepted possessing that special genius to study mechanical and chemical problems as a hobby as well as from the standpoint of an energetic modern thinking man.

I might mention that it took a very short time after the Europeans took up the manufacture of hydraulic grinders some 30 years ago, in copying same from the Americans.

We will hope that it will not take longer for us over here to adopt Europeans ideas as regards eliminating of waste and unnecessary expense.

THE DRYDEN PLANT.

Statement of Working.

D. L. Mather, liquidator and receiver, has sent a letter to the creditors, shareholders and others interested in the Dryden Timber and Power Company, Limited. The letter is as follows:

"On the 20th of August an application for a winding up order against the Dryden Timber and Power Company, Ltd., was made on behalf of Messrs. Chapman & Walker, Ltd., of Toronto, who are large creditors of the company. The order was not opposed by the company, as it was obliged to admit its insolvency, and a winding up order was granted by the court, which appointed the Union Trust Company as provisional liquidator.

"In accordance with the usual procedure all creditors were notified by the official referee of the action which had been taken, and the 16th September was fixed for the appointment of a permanent liquidator.

"On the 15th of September an informal meeting of the creditors was held at Messrs. Chapman & Walker's offices at Toronto, at which all the creditors were invited to attend or to send their proxies. Mr. Mather, who recently became president of the company with a view to effecting its reorganization if possible, also attended the meeting. The position of the company was laid before the meeting, as follows:

"As stated in the report laid before the annual meeting in April, owing to various delays in construction of the pulp mill, and to underestimation of parts of the cost, the company exhausted its available capital and incurred further considerable obligations before the mill was finished. Arrangements were made with certain bondholders and shareholders to make temporary advances to the company for the purpose of carrying on operations between April, when the mill was finished, and August. Owing to the failure of certain parts of the machinery, the mill was unable during these months to work up to more than half of its proper capacity, and consequently made no profits. In these circumstances it was impossible to raise fresh capital, and, as the company was unable to obtain further temporary advances, and was being pressed by its creditors there was no alternative for it but to go into liquidation. It was pointed out to the meeting that, except for a lien held by the bank on logs and lumber, and some small liens which were claimed on parts of the machinery, neither of which were of much value unless the plant was in operation, the whole of the company's assets were pledged to the bonds; and that, as a forced sale would not be likely to realize enough to cover the bond issue, the unsecured creditors would get nothing. Mr. Mather, by request, laid before the meeting his views on the prospects of the company, which were to the effect that if a fresh sum could be obtained sufficient to make the necessary replacements and additions to the machinery, he believed the mill could be brought, in the course of a year and perhaps sooner to a profit earning position, in which case a reorganization scheme would be possible.

"After hearing the statement of the company's position and Mr. Mather's statement, it was the feeling of the meeting that the interests of the creditors lay in the carrying on of the business, if possible, and a unanimous resolution was passed in favor of the appointment of Mr. Mather as permanent liquidator, with a view to this being done on the lines suggested.

"On the 16th of September, the official referee held a meeting for the purpose of appointing a permanent liquidator. A number of the creditors were present. Mr. Mather was nominated as permanent liquidator, and no other nomination being made, he was appointed accordingly.

"Subsequently, on the application of the trustee of the bondholders, Mr. Mather was also nominated as receiver, and in both capacities was authorized by the court to carry on the business, and to obtain funds for doing so by means of prior lien notes.

"A meeting of the bondholders was held in London on September 9, representing a clear majority of the bonds,at which the issue of prior lien notes for the purpose of carrying on the business was agreed to, and a bondholders' committee was appointed to consult with the liquidator regarding any proposals for the sale or reorganzation of the business.

"The present expenses of the plant have been reduced as much as possible. The mill is being run so as to work off the stocks of pulp on hand. Negotiations are on foot with regard to the future disposal of the company's product, as a favorable settlement of this matter would facilitate the raising of the further funds required. As soon as this is settled, the matter will be taken up with the bondholders, and an endeavor will be made to get them to provide the funds required for additional machinery, etc. If this is successful, a reorganization scheme will be prepared as soon as it is seen by experience on what revenue the company can reasonably calculate.

"DRYDEN TIMBER AND POWER COMPANY, LTD.,
"D. L. Mather, Liquidator and Receiver."

SPANISH RIVER PULP AND PAPER MILLS, LTD.

Annual Meeting in Toronto Passed off Without Incident.

At the annual meeting of the Spanish River Pulp and Paper Mills, Ltd., Mr. W. E. Stavert, the new president, occupied the chair. No very definite information was available after the meeting and it is doubtful if any business of great importance was transacted. Reports published by daily papers credit Mr. Watson, the general manager, with having estimated the net profits at $1,500,000. The estimated output of the company, placed by one paper, at 300,000 tons, is entirely erroneous as the total capacity of the plant is only 130,000 tons, and at a profit of $10 a ton, which is too liberal an estimate, the total profits available for bond interest and dividends would amount to $1,300,000.

Some criticism was offered by shareholders on the placing of $412,345 deferred charges, such as commissions, discounts and expenses on the issue of the securities asset side of the statement. The manager pointed out that these charges must necessarily spread over a number of years and must be shown as an asset to balance the capital liabilities shown at par.

The following board of directors was unanimously elected: Messrs. W. E. Stavert, J. F. Taylor, W. K. Whigham, F. A. Szarvasy, T. H. Watson, H. E. Talbott, G. H. Mead.

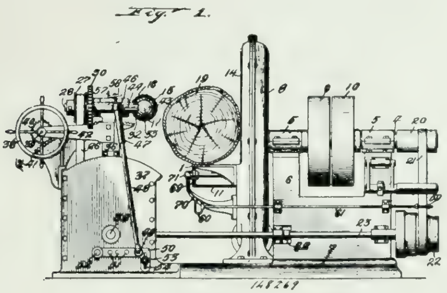
NEW PATENTS

ROSSING MACHINE.

By The Green Bay Barker Company, Assignee of Fred. Libert, both of Green Bay, Wis. Patentee.

Can. Pat. No. 148,269.

In a machine for removing bark from logs, the combination of a rotary cutter, a cutter supporting base, a stationary frame connected with the base, an inclinable frame pivotally supported from the stationary frame, rotary spur wheels carried by an inclinable frame adapted to bear against a log and simultaneously revolve and move it longitudinally forward as the bark is being removed therefrom, means for manually forcing the spur wheels into engagement with the log, and means for automatically changing the inclination of the spur wheels to correspond to logs of different diameter whereby the log is moved longitudinally more or less rapidly according to the area of the surface from which the bark is removed.



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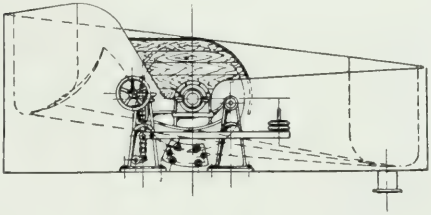
SCHACHT'S PATENT BEATER.

German Pat. No. 264,859

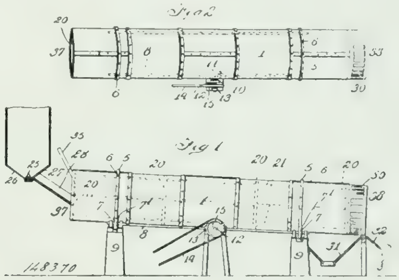
The novel feature of the beater consists in the breasting being materially increased in height, namely to the same height as the top of the roll. The gradient is then of course particularly great and the beater can be charged very thick without the speed of circulation of the pulp being diminished too much. In a beater converted according to Schacht's patent the following speeds of pulp were determined:

At 10.58% thickness of pulp = 19.2 m.
At 10.94% thickness of pulp = 16.0 m.
At 11.9 % thickness of pulp = 10.5 m. per min.



NEW ROSSING MACHINE.

A new cylindrical barking drum has been invented by Mr. C. C. Hockley, Sulphite Superintendent of the Laurentide Company at Grand Mere. The cut shows the drum which is along the ideas to some extent of that recently invented by Mr. C. Bache-Wigg, Jr. It is more like the continuous drum now running at Carthage and invented by Mr. Bache-Wigg, Sr. It is quite certain that the development promises to go to considerable lengths in this direction in barking wood for news print and wrapping papers. Recently the editor saw a drum working in Wisconsin which was giving great satisfaction although it was not a continuous system such as this new invention of Mr. Hockley's is. The economy in the wood amounts to 15% to 20% and although they will not bark as clean as disc barkers, they are suited admirably for ground wood, news and wrappings. The drum is essentially, as seen in the diagram, a long boiler open at both ends mounted on trunions and revolves at a speed sufficient to clean the bark off and wood. It has been found in other drums that slabs the wood which have been cut and dried, can be barked although, of course, not as easily as wood taken from a pond.



It is manufactured by the William Hamilton Co., Peterboro.

U.S., 1,069,445, A. Loose. **Making cellulose acetate** by impregnating cellulose with hydrazine sulphate, then stirring with glacial HOAc and Ac 2O and sepg. the cellulose acetate from the mixt., e.g., by pptg. with H 2O.

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Brit., 7,893. E. Bloch-Pimentel. Constructional details of a combined steeping and pressing **apparatus for the production of alkali cellulose in the manufacture of viscose.**

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Fr., 450,746. L. Desvaux. In the manuf. of **non-combustible plastic masses,** acetone-sol. acetycellulose 50 kg., coal tar creosote 10 kg., ethyl pentachloride 25 kg., and alc. 25 kg., are kneaded together, and mixed with gelatin softened with glacial AcOH 12.5 kg., whereupon, after rolling, the plates are compressed in a hydraulic press at 50 70 and left to cool.

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Fr., 450,886. Debauge. In the manuf of **cellulose acetate,** cotton after complete acetylization, is coagulated in a mixt. of HOAc and AcOAc, with benzine or homologs of benzine or petroleum-CCl4.

Fr., 451,374. P. de La Fresnaye and E. Cadoret de La Gabiniere. In the manuf. of **acetone,** monobasic organic acids are esterified and treated with metallic reducing agents in the presence of amines. HOAc of 40%, 700 parts, is mixed with NaCl 230, Fe 210, EtOH and aniline 150, and H_2SO_4 275 is added gradually. After esterification, permanganate 100 and $CuCl_2$ 185 are added, and the mixt. distilled.

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Ger., 259,691. B. Jirotka. In the manuf, of a **building and insulating material from cellulose,** in the form of sponge-like porous plates with hard solid surface, the initial material is first formed and pressed to eliminate a portiom of the H_2O content, whereupon the residual H_2O is rapidly evapd. by hot air in a heated chamber. Properties and advantages are specified.

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Ger., 261,245. Hollingsworth and Whitney Co. App. for **breaking up and separating fibrous slurry** for the manuf. of paper stock.

* * *

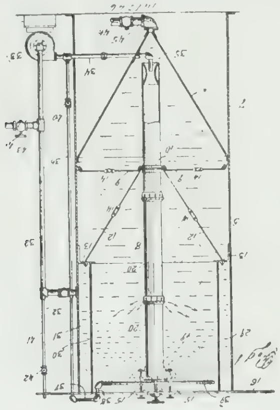
Ger., 261,716. E. Zeuner. An app. for **delivering diluting water to paper stock** in regulable amts.

PULP AGITATOR.

By The Hammond Iron Works, Warren, Penn., Patentee.

Can. Pat. No. 147,246

In a pulp agitator, the combination with a pulp containing tank having an open-ended standpipe, and means for introducing solution into the lower extremity of the pipe whereby the circulation of the pulp through the tank and pipe is established, a portion of the pipe being composed of movable sections, and means mounted thereon for introducing liquid jets from the pipe into the surrounding pulp.



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PULP PRESSING APPARATUS.

By C. Schaanning, Christiania, Norway, Patentee.

Can. Pat. No. 147,039; 147,40, 147,41.

System of pressing out water from continuously running layers of wood pulp or the like, characterized by the fact that besides the upper roll of the felt press and it may be, besides that of the subsequent press on which upper roll the layer of pulp deposits itself there is provided a remover roll pressed against the upper roll by the action of a spring or the like. The remover roll taking up the layer of pulp and feeding it to the next press.

NORWEGIAN PAPER AND PULP MILLS DIVIDENDS 1910-1912.

	Capital	Dividends.		
	Crowns	1910	1911	1912
Ground Wood Mills.				
Bagna, by Honefos..........	35,0000	10	10	10
Kistefos, by Randsfjord......	900,000	10	10	?
Labro by Skollenborg........	1,000,000	10	10	10
Meraker by Meraker.	2,500,000	6	6	?
Oerje by Oerje.............	400,000	0	0	0
Sulphite Mills.				
Greaker by Greaker.........	2,000,000	0	5	6
Gulskogen by Gulskogen.....	1,400,000	?	0	0
Katfos by Gjethus...........	905,000	0	0	0
Krogstad by Mjondalen......	1,200,000	5	5	6
Mjondalen by Mjondalen....	1,500,000	0	0	0
Saugbrugsforeningen by Fredrikshald..................	6,000,000	5	5	6
Skien by Skien.............	....	0	0	0
Skotselven by Skotselven.....	500,000	0	0	0
Tofte by Tofte in Hurum,....	1,100,000	0	0	10
Vestfos by Vestfossen........	1,230,000	0	0	0
Paper Mills.				
River Drammen Paper Mills by Gjethus...............	1,013,750	8	6	?
Hofsfos by Honefos..........	600,000	6	0	5
Holmen-Hellefos by Drammen	1,000,000	0	0	0
Hunsfos by Kristiansand.....	1,440,000	10	10	10
M. Peterson & Son by Moss..	1,000,000	0	0	0
Randsfjord by Randsfjord....	583,000	0	0	0
Union Co by Skien..........	7,000,000	8	8	8
Board Mills				
Fjeldhammer by Strommen...	130,000	6	6	6

DRYING VARNISHED PAPERS.

The only difficulty is with oil varnishes. Spirit varnishes dry too quickly to cause any trouble. The time required with oil varnishes is very various. Some of them dry within twenty-four hours, while others take a week, and even more, in unfavourable weather. At the same time, the drying can be greatly accelerated by keeping the temperature of the drying room steadily at 25°C., and storing the varnish in it, so that that is always at 25°C.

The paper that has to be varnished should also be put in the room long enough before being varnished to acquire the standard temperature of 25°C. As this temperature is trying to the workers, they can be relieved, and the drying promoted at the same time, by good ventilation. A fan supplying air at 25°C. will supply that and keep the temperature from rising or falling at the same time. The sheets should be dried pinned to frames by their edges.

It is essential that papers to be varnished, especially printed papers, should be thoroughly dried before varnishing. Should this not be the case, the varnish will remain tacky for a long time, and may eventually show damp stains. A rough test of the dryness of printed and colored papers is to draw the finger-nail sharply across the sheet. Should any coloring matter or ink be scraped off, the paper is not dry enough to varnish.—(Papier Zeitung.)

The use of starch in beater sizing paper for envelopes and bags produced a live snappy sheet, which is much stronger than a similar sheet made without starch. This is a very important point for both bag and envelope papers. Hard sizing with rosin increases the tendency to crack on folding. If starch is used in connection with a normal amount of rosin size, this trouble will not occur. The use of starch in the beater in connection with rosin produces a sheet which will give the required finish with a minimum amount of calendering.

CHICOUTIMI PULP WON'T UNDERTAKE STOCK ISSUE NOW.

Sanction to exchange the company's present 5 per cent. 30-year bonds into 6 per cent. 30-year bonds was given by the bondholders of the Chicoutimi Pulp and Paper Company at the meeting announced in the last issue of the PULP AND PAPER MAGAZINE.

The Chicoutimi Pulp Company was incorporated in 1900 as a re-organization of a company of the same name as manufacturers of ground-wood pulp.

For the year ended December 31st, 1912, net profits after providing for working expenses, maintenance and repairs, administration, etc., amounted to $156,110; interest and discount brought in $19,295, and sale of electric current $12,000, making a total income, $97,897, including a balance of $10,492 as at December 31st. 1911.

Fixed charges were: depreciation on river improvements, $7,508; interest on debentures $59,791; appropriated for sinking fund, $23,526; directors, fees, salaries and audit fees, $11,678; making a total of $102,593.

Following the action of the bondholders the company has taken out supplementary letters patent authorizing an increase of capital stock of the company to $7,500,000 from $1,000,000, by issuing 40,000 shares of common stock and 25,000 shares of 7 per cent. cumulative participating preference stock. Instead of issuing 25,000 preference shares of the value of $100 the company may issue 500,000 shares of a par value of £1 sterling.

Mr. J. E. A. Dubuc, managing director of the company, states that no immediate extensions to plant will be undertaken and that in the present state of the money market the proposed new stock issue will not be undertaken.

Mr. Dubuc is optimistic with regard to the future. He says the Chicoutimi company has orders ahead, at the present covering practically the entire output of the mills for the next eight years.

MOSS POINT MILLS.

(Special to Pulp and Paper Magazine.)

The Directors of the Southern Paper Company met at the plant of the Company, which is known as Kreole Mills, and after an inspection of the operations, proceeded to the business for which they were called together. Mr. J. L. Dantzler of Moss Point, Mississippi and New Orleans, the President of the Company, was in the chair and introduced Mr. A. Shirley Benn, M.P., now of London, England, who is well known in the Gulf Coast districts, where he was formerly engaged in extensive business. Mr. Benn is the Company's first Vice-President and as such presides at the meetings of the London Board. He announced that Financial Arrangements had been completed for placing an increase in the securities of the Company, thus taking care of the increased expenditures made necessary by the enlargement of the plant beyond the capacity originally planned, and to cover unforeseen expenses incident to getting the plant into regular operation on high grade wrapping papers. The President stated that the Company's product has been very highly complimented in the market and is being sold with no difficulty in spite of a general slow market in these lines. The Company's "Kreole Kraft" brand is now well established.

The Directors elected Mr. Alfred Dentzler of Moss Point, Treasurer in place of Mr. W. S. Hofstra of New York, who has recently resigned, and the Company's head office will after November 1st be at the mill.

Joseph G. Mayo the Company's Manager was elected Assistant Treasurer, as well as General Manager.

The Executive Committee consists of J. L. Dantzler, President, A. F. Dantzler, Treasurer and Joseph H. Wallace of New York, Second Vice-President and Consulting Engineer.

The report of Mr. Wallace on the question of installation of a by-product plant at the mill to produce turpentine and other chemical products from the resinous residue of the wood after the paper material is extracted was approved and Mr. J. L. Dantzler and Mr. Wallace were appointed a committee to work out the plan of procedure.

WARREN CURTIS DEAD.

Warren Curtis, a paper maker who was known to the paper industry of the world, died suddenly at Palmers Falls, N.Y., on Sunday night, November 2.

Mr. Curtis came of a family that in all its branches was a vital factor in the paper making industry in this country many members of it being mill owners in various parts of the United States. He was born in Passiac, N.J., and went to Palmers Falls, N.Y., forty years ago as the manager of the mills of the Hudson River Pulp and Paper Company, these mills now being owned by the International Paper Company, He was seventy-seven years old.

Up to 1880, the record in the way of width and speed of Fourdrinier machines was 100 inches wide and 200 feet per minute, this record being held by the late P. H. Glatfelter, of Spring Forge, Pa.

In 1887 Mr. Curtis drew up specifications for a Fourdrinier, such as he thought should exist. Many thought the design proposed was visionary and impracticable, and even machine builders held to that opinion, declining to build on the plans laid down. Finally the machine was built by Pusey & Jones, of Wilmington, Del., and was installed in the Palmers Falls mill. It was acknowledged to be far in advance of any machine built up to that time, and it was the show spot for paper makers and paper machine builders who flocked to see the mechanism that one paper maker said was "twenty years in advance of its time."

The Fourdrinier part of this machine was 112 inches wide. and the wire was 50 feet long. There were 15 dryers, each 48 inches in diameter, arranged in two tiers, 9 below and 6 above. This was an immense drying surface for that day. The frames, shafting, gearing and all the other parts of the machine were very heavy. This machine, which attained a speed of 250 feet a minute marked the beginning of a new era of machine building and news paper making. It was a success, and its success led to the building of even speedier and wider machines, until now the results then obtained seem rather significant. Mr. Curtis lived to see machines built up to 202 inches wide, the first two of that width being installed in a mill of which his son, Warren, Jr., is manager, while the speed of the machine had been much more than doubled.

Mr. Curtis was a director of the International Paper Company, and was for a long term the head of its department of construction and maintenance. In 1896 he was one of the Presidential electors on the Palmer and Buckner ticket, and had wide social and business connections.

He is survived by a widow, three sons, Warren, Jr., who is manager of the Ontario Paper Company, Thorold, Canada, and Allen and Henry, of New York, and two daughters, Mrs. Charles H. Yates, of New York, and Miss Marguerite Curtis of Palmer.

The new sulphite mill of the Riordon Pulp and Paper Co. to be built at New Liskeard has been postponed for a year and will not now be built until the year 1915. Money conditions are the reasons for the change of plan.

The new board mill of the Hinde & Dauch Paper Co. in Toronto will be in operation early next month. All the new equipment is now in position with the exception of the boilers.

PULP AND PAPER NEWS

It is expected that the forest revenue of British Columbia this year will reach about three million dollars which is an increase of four hundred thousnad dollars over last year.

Mr. James Grant has retired from the firm of Erikson & Grant, Wood Pulp Agents, 73a Queen Victoria Street, London, E.C., The business will in future be carried on by Mr. Robert Erikson as sole partner.

Patents have been granted in United States to M. & B. Thorne, manager of Riordon's Mills at Hawkesbury on his sulphite reclaiming system, under date of October 31, 1913. This was described in an issue of June 1st. under Canadian patent No. 154,469.

Frank Davidson, lumber man and pulp manufacturer and one of the most prominent residents of the south shore of Nova Scotia, died on November 10, after an illness of four days. Mr. Davidson suffered a stroke of paralysis. Before that he had been in robust health.

Benefactions totalling $140,000, in which nearly all the Protestant and non-sectarian hospitals and charitable institutions in Montreal will benefit, are provided in the will of the late Hugh Watson, founder of the Watson-Foster Wall Paper Manufacturing Company of Maisonneuve, who died on September 20 last.

The extensions carried out to the Wayagamack plant, which give it an entriely new department for the manufacture of what would be commonly known as "Coated Wrapping Paper" such as is used for high class candy trade, have now been completed and this will give the company an additional ten tons of paper per day.

A fire, which broke out on Pearl street, Toronto, a few days ago, did forty thousand dollars damage, the principal losers being the Alexander and Cable Lithographing Co. The Aldine Press and J. T. Irving, bookbinder, located on the top floors above suffered somwehat from smoke and water.

Charles V. Syrett managaing director of the Victoria Paper and Twine Co., Toronto, who has returned from a trip to several points in Quebec, reports that business appears to be picking up considerably and the outlook is getting better all the time.

The Canadian Government is determined that work shall be rushed on the new Welland Canal and a call for tenders for the fifth section, between Port Robinson and Allenburg, has been made. Tenders will be received up to November 18. This will make the fourth section to be put under contract.

The A. M. Shaw Company, Limited, with a capital of $40,000 and head offices in Fort Frances, Ontario, has been incorporated to carry on business as timber merchants, saw mill proprietors, etc., and to buy, sell and deal in wood and timber of all kinds. The company also has power to acquire, hold and dispose of timber licenses and booming privileges granted by the Crown. The incorporators are Angus McEachern Shaw, Matthew J. Nolan, Albert E. Carter, and John T. Dalziel, all of Fort Frances, and James S. Nolan of Minneapolis.

It is said that legislation will be introduced at the forthcoming session of the Dominion parliament calling upon all companies holding federal charters to file annual returns of their business with the government. In Ontario and some other provinces, concerns operating under provincial charters, are called upon to make such returns annually but there has in the past been no way of finding out what a company doing business under Dominion incorporation is doing or the general character of its work.

In January last, while several employes of the sorting room of the St. Lawrence Paper Mills at Mille Roches, Ont., were at work they ran across diamonds and emeralds in a bale of old rags. Mrs. Buel, one of the employes found a ring with nine precious stones in it which dropped from one of the bundles. She gave an expression of delight at her discovery and others came rushing around to ascertain the cause. Miss Lena Foley, another worker, picked up a bag of diamonds and emeralds which Mrs. Buel had overlooked. The latter claimed the jewels but Miss Foley steadfastly refused to hand them over. Mrs. Buel, therefore, brought action in the courts to recover the gems or, in the alternative, to recover $2,000. The case came up at Cornwall last spring before Mr. Justice Latchford and the action was dismissed. Mrs. Buel carried the matter to a higher court. A few days ago her appeal was heard before the First Divisional Court of the Appellate Division in Toronto and the appeal was dismissed, the judgment of Mr. Latchford being sustained. The result is that Miss Foley will keep the gems. The original owners were never discovered and the proprietors of the mill did not put in a claim for the valuables, leaving the girls to fight it out among themselves.

A most successful plowmen's match was held this week at "Sunnybrook Farm," which is the property of Joseph Kilgour, President of the Canada Paper Co. and a member of the firm of Kilgour Bros., paper bag manufacturers, Toronto. Mr. Kilgour is an enthusaiastic agriculturist and, in reviving the old time plowing matches, he has done much to win favor with the farmers of Ontario. There was a large attendance and all the contestants were entertained at "Sunnybrook Farm."

Bread wrapping is making excellent progress in many of the cities of the Dominion and machines for this purpose are now in operation in two Winnipeg and in three Toronto plants, while orders have been placed by several bread manufacturers for machines which are being built as rapidly as possible.

A meeting of the trade and class press section of the Canadian Press Association has been called in Toronto on November, 19, to consider the second class postal rate situation from the standpoint of the trade and class press and the need of definite recognition of trade and class publications in the postal act and regulations, as well as other important matters. A special general meeting of the Canadian Press Association will be held in Toronto on November 20 to take action upon the application for the incorporation of the Association by special act of parliament and the by-laws for the government of the Association as an incorporated body. In the special act it is set forth that the purposes of the Association are to elevate the standard of newspaper writing and newpsaper publishing in Canada, to foster the business interests of the members, and to procure and diffuse reliable information regarding the standard and character of persons, firms, etc., with whom the members may do business, and to promote a more enlarged and friendly intercourse among the members. It is the intention of the Postmaster-General to ask parliament at the next session to authorize an increase in the rate of postage on second class matter and the members will, it is expected, take action to oppose any advance on present rates. The Canadian Press Association may invite the Imperial Press Conference to meet in Canada next year. This Conference is convened every five years and the last session was in London. The body is composed of representative journalists and publishers of the United Kingdom and the various divisions of the Empire.

John M. Imrie, Secretary of the Canadian Press Association, is gathering statistics from the various news print mills in Canada of their production and will shortly present figures to the Association showing the total daily capacity of Canadian plants. The various mills have been very willing to supply information.

There will henceforth be monthly meetings of the new Board of Directors of the Spanish River Pulp and Paper Mills which will be held on the second Wednesday of each month either in Toronto or at the location of the various plants of the company at Espanola, Sault Ste. Marie or Sturgeon Falls. T. H. Watson, Managing Director, states that all the ten paper machines of the company are now working at full capacity and that the whole output is sold for some times ahead.

A big scheme for the establishment of pulp and paper mills at Three Rivers, Que., is being much talked of among paper men here. It is stated that ever since the new tariff was decided upon, a syndicate representing a powerful group of American capitalists has been quietly at work securing options for the establishment of a pulp and paper plant at Three Rivers, which will be among the largest in the Dominion. No names are mentioned, but the statement is that certain Montrealers will be identified with the enterprise. Power for the enterprise might be obtained from the Laurentide's new power scheme at Three Rivers, which is a comparatively short distance away, but there are rumors that the Gres Falls will be utilized for the purpose.

The steamer Keyvive arrived in Thorold this week from Sweden with a cargo of sulphite pulp which was unloaded at the Ontario Paper Co.'s dock. The Keyvive loaded at Hernosand, Sweden, and came direct to Thorold via the St. Lawrence river and the Welland Canal. This is the first boat from a Swedish port to bring a cargo to any point on the Canal. The steamer Glenfoyle, which arrived with a cargo some two weeks ago, came direct from Drammen, Norway. Thorold is certainly now an ocean port.

H. C. Courteney, superintendent of the Howard Smith Paper Mills, Beauharnois, Que., who was suffering from an attack of appendicitis, is now able to resume his dutiesi

The new Yankee machine, which turns out a fine grade of Kraft paper, is now in successful operation at the Wayagamack mills and is adding 10 tons to the daily output of the company. The paper which is of fine quality has come fully up to expectations and is finding a ready market. The original Kraft machines installed by Wayagamack are turning out about 50 tons a day. The lumber mills of the company continue active with an output of about 100,000 feet, a day, while beginning about March 1st, next, Wayagamack will have a surplus of about 50 tons of pulp a day to market.

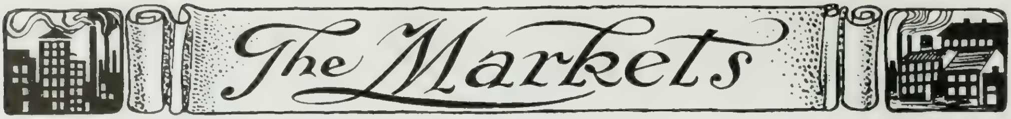
At a recent meeting of the Board of Trade of Kenora, Ont., it took upon itself to discipline the Minister of Lands, Forests and Mines and to request him to alter the limits of certain pulp concessions. The general public, who knew better than the board resented their action and held a protest meeting last week. These limits are to supply a pulp mill to be established there.

In the lumber camps in the northern part of the States of Maine it is reported that the Stetson, Cutler Company, of St. John, N.B., and New York, has acquired the controlling interest in the Van Buren Lumber Company, which operates the largest steam saw mill in Van Buren on the St. John river. A. E. Hammond, one of the well known Maine lumber men, and who has been at the head of the Van Buren Company's interests, has sold his holdings to Hon. W. W. Thomas, of Portland, who is said to be acting in the interest of the Stetson, Cutler Company in this matter. Mr. Thomas, it will be remembered, is a former United States minister to Sweden. The Stetson, Cutler Company, will not, it is understood, take over the control of the company until the present season's cut is manufactured, which will be after the fall of 1914. It is believed that the new owners will materially enlarge the plant and the business.

The Vancouver Lumber Company has accepted the decision of the board of arbitration in its recent dispute with the city over loss sustained through the building of the Connaught bridge over False Creek. The company's original claim was for $508,000, alleging that the elevation of the adjacent roadway by nearly 40 feet had prevented the company from subdividing its twelve acres into mill and factory sites. The board of arbitration awarded damages of only $16,875 and after some time spent in consideration of the offer the company has decided to accept the amount. The minority report favored no compensation whatever.

Process Engineers, Limited, Montreal, have recently received from the Wayagamack Pulp and Paper Co., of Three Rivers, Que., an order for one of the Ernest Scott & Co.'s of Fall River, Mass. Improved Vacuum Evaporating plants for use in the recovery of their sulphate waste liquors. This equipment will consist of four "Scott" evaporators together with the necessary vacuum liquor pumps, and will be similar to equipment furnished by the same company to a large number of firms in the paper trade. European firms use "Scotts" machines extensively and the Brompton Pulp and Paper Co., of East Angus, Que., have had one of these apparatus in successful operation for the past two and a half years. The Scott Company claims that the design and construction of these evaporators not only give longer life to the machine but also reduces the wear and tear so that the plant works with less stoppage for repairs than other machines which are on the market for a similar purpose. To a paper mill working 24 hrs. a day and seven days a week the year round the advantages of a machine that complies with these conditions will be obvious not only in reduction of expenses but in diminished loss through stoppages. The Scott firm are represented in Canada by Process Engineers, Limited, Montreal, Que.

The contractors for the Abitibi Pulp & Paper Co. have just started construction on the Grinding Room and Power House, having completed the Wet Room, Screen Room, Slasher Building and all the buildings on the top of the hill. They will not commence construction of the dam until next season. The paper company themselves are building at Couchiching near the foot of the Abitibi Lake a crib storage dam on which they have employed about 200 men It is proposed to raise the level of the lake five feet. At the present time, they are experiencing great difficulty in getting supplies into this camp on account of Abitibi Lake having frozen over. They have been bringing supplies in on the Transcontinental from the north and down the lake by boat. At the present time, the ice is not strong enough to carry teams and the "tote" road has not enough snow to haul by land. It is understood that this camp is in serious difficulty which, however, will soon be overcome when the ice makes a little more.



The Markets

Canadian Markets

Notwithstanding a great deal that is heard of the alleged over production in news print, prices remain firm and those now engaged in large enterprises apparently have no fear of the future. It has been estimated that the increased export to the United States, by reason of the elimination of the tariff, will be at least 100,000 tons more during the coming year than in the past. It is interesting also to note that two of the largest news print concerns in the Dominion, have announced their intention of adding additional machines, while various other projects are under way. This would indicate a healthy outlook and a confidence in the stability of the news print situation generally.

Book and writing plants are not rushed by any means but still there is quite a lot of business being picked up, although it comes in smaller quantities and with considerable more difficulty than a year ago. That conditions are not as unfavorable in the paper line as in some others, is indicated by the fact that there has been no price cutting in book, bond, ledger and high grade writings, although there has been some slashing in wrappings and paper bags, as well as in kraft. Jobbers are doing a fair business, but expect that December will prove a much more active month with them on account of the anticipated large Christmas trade. Coated paper mills report business as only fair, but are hoping for better things. The pulp situation remains unchanged. There are a large number of inquiries for ground wood, but many of the offers are at lower figures than producers care to accept. The volume of sulphite sales is very satisfactory and prices remain unchanged.

In the rag and paper stock market there is quite a little moving. Folded news is in good demand, Soft white shavings are fair, as are also No. 1 print manillas. White blanks are moving very slowly. The general situation, however, is one that is likely to improve.

Owing to an ordinance just issued by the Medical Health Officer of Toronto forbidding the use of the roller towel it is expected that a big demand will spring up for crepe sanitary towels and mills in this line are eagerly looking out for large business.

Quotations, f.o.b. Toronto are:

Paper.

News (rolls) $42 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill.
Book papers (carload) No. 3, $3.75 to $4.50.
Book paper (ton lots) No. 3, 4c. to 4.50.
Book paper (carload) No. 2, 4.25c.
Book paper (ton lots) No. 2, 4.50c to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $2.75 to $3.75.
Manila B., $2.40 to $3.25.
Manila No. 2, $2.75 to $3.50.
Manila No. 1, $3.00 to $3.75.
Kraft, 3.75 to 4.75

Pulp.

Ground wood (at mill), $15 to $17
Ground wood, $22 to $24.50, delivered in United States.
Sulphite (unbleached), $43 to $45, delivered in Canada.
Sulphite (unbleached), $43 to $46, delivered in United States.
Sulphite (bleached), $58 to $60, delivered in Canada.
Sulphite (bleached), $58 to $62, delivered in United States

Paper Stock.

No. 1 hard shavings, $1.90.
No. 1 soft white shavings, $1.75-1.80
No. 1 Mixed shavings, 60c.
White blanks, 90c.-92½c.
Ordinary Ledger Stock, $1.20.
Heavy Ledger Stock, $1.40 to $1.50.
No. 1 book stock, 80c. to 85c.
No. 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.15
No. 1 print manilas, 65c. to 67½c.
Folded news, 52½c.
Over issues, 55c.
No. 1 clean mixed paper, 42½c.
Old white cotton, $2.50 to $2.75.
Thirds and blues, $1.30 to $1.32½.
No. 1 white shirt cuttings, $5¾-5½.
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.75.
Black linings, $1.75.
News light flannelettes, $4.60 to $4.75.
Ordinary satinets, 75c.
Flock, 90c,
Tailor rags, 65c. to 67½c.

Quotations, f.o.b. Montreal, are:

Paper.

News, $41 to $43, delivered.
News, $41 to $43 for large orders, $44 to $45 for small orders.
Newsprint, sheet, $45 to $50 at mill.
Book, carload lots, No. 1, 5¼c. to 6¼c.
Book, broken lots, No. 1, 6¼c. to 6¾c.
Book, carload lots, No. 2, 4¾c.
Book, broken lots, No. 2, 5c. to 5½c.
Book, carload lots, No. 3, 4⅛c. to 4½c.
Book, broken lots, No. 3, 4¼c. to 4¾c.
Manila B., 3¼c. to 3½c.
Fibre, 4c. to 4¼c.
No. 1 manila, 3½c. to 4½c.
No. 2 manila, 3¾c. to 4c.
Kraft, 4c. to 4¾c.

Pulp.

Sulphite, Easy Bleaching, $43 to $45 per ton.
News quality, $41 to $42 per ton.
Bleached Sulphite, $54 to $59 per ton.
Kraft Pulp, $3.60 to $4.00
Ground Wood, No. 1, $15 to $16.00
Ground Wood, No. 2, $22 to $24, delivered United States.

New York Markets

(Special to Pulp & Paper Magazine.)

New York, N.Y., November 12th, 1913

The chemical pulp situation here is inclined to be rather weak. Very few, if any, buyers are in the market for forward supplies, and competition is very keen for additional business. The movement at present is practically confined to contract withdrawals, and consumers are only laying in such supplies as are actually needed for immediate uses. Importers are competing keenly for new business, and though concessions are offered, comparatively few takings are reported. Reports from abroad indicate that supplies are rather plentiful in some quarters but light in others, nevertheless offerings are bieng made for 1914-1915 deliveries at prices considerably lower than a month ago. This is due chiefly to the fact that the American consumers have been holding off so long in their contract making in the hopes of breaking the market after the passing of the new tariff bill on October 3rd last. That they have won their point is quite evident from the present quotations, which have been greatly reduced. The domestic brands are being well maintained, though the stress of competition is keen. Prices in all quarters have not varied in the past few months and the majority say they are pretty well sold ahead. In fact quite a few of the domestic producers have withdrawn from the market. This naturally reflects a much stronger tendency among the makers on this side of the water. A revised list of quotations is given herewith.

Though heavy rains of the past fortnight have greatly aided in the production of ground wood pulp, the current supplies at the various consuming mills is still very light. In consequence there is still a very strong demand of additional lots and grinders are as firm, if not firmer, in their views as they were two weeks ago. Reports from the various sections of New York State show that mills are running their machines practically at full blast. Some mills, however, have been troubled with anchor ice, and have been forced to curtail operations slightly. It is the comomn belief that the forthcoming winter will witness a continued good demand for ground wood pulp, as mills are going into the winter with a very light supply on hand.

The waste paper market is enjoying a continued good demand in almost every section. Locally all grades of shavings, Books, ledgers, and in fact all descriptions of the higher grades are passing freely into consuming channels. Prices are being firmly maintained and in some instances are showing a decidedly strong upward tendency. White shavings in particular are moving more freely than the other grades. The general movement compares very favorably with the corresponding period of a year ago, but orders now being booked, though larger in number, are not of as heavy a volume; showing that consumers are not so free in their anticipations for the future as they were a year ago. Contracts at this time last year were made well into the current year. Now consumers are only buying three to five weeks ahead. The common grades of waste papers, though in fairly good inquiry, have sagged off slightly during the past fortnight, and prices in certain descriptions are inclined to be easy.

Pulp.

Ground Wood, No. 1, $19 to $23 per ton, f.o.b. mill.
Ground Wood, No. 2, $17 to $19 per ton, f.o.b. mill.
Unbleached sulphite, domestic, 2c. to 2¼c. per pound, del-
Unbleached sulphite, imported, 1¾c. to 2c. ex dock, New York.
Bleached sulphite, domestic, 2.90c. to 3c. per lb. delivered.
Bleached sulphite, imported, 2.70c. to 2.95c. per lb. ex dock, New York.
Easy bleaching sulphite, imported, 2.10c. to 2.20c. per lb., ex dock, New York.
Unbleached sulphate, imported, 1.80c. to 2.10c. per lb. ex dock, New York.
Bleached sulphate, imported, 2.60c. to 2.80c. per lb., ex dock, New York.
Kraft pulp, imported, 1.85c. to 1.95c. per lb., ex dock, New York.
Soda pulp, domestic, 2.15c. to 2¼c. per lb., delivered.

(All quotations of foreign products are made on a basis of ex duty.)

Paper.

Further proofs that general business conditions are returning to normal again are to be noted in all sections of the country. In conjunction with other lines, the paper industry is showing added activity under increased consumption of all grades of paper. The buying movement, not only in New York, but in the principal distributing centres of the United States, continues to make rapid gains, and at some quarters something of a rush is in progress. This is augmented to a certain extent by the fast approaching holidays, but the new tariff of last month is believed to be the cause of much of the activity. Quite a few foreign paper concerns have been flooding this market with offerings that are quite alluring, and many are personally represented. While prices of foreign papers are, in almost every case, decidedly cheaper, the question of prompt deliveries is the one great drawback. Though competition has been especially keen in book and writing papers of late, the domestic producers continue to maintain prices and are also getting the business. They are able to make their deliveries in three to ten days, whereas their foreign competitors are not guaranteeing deliveries under eight weeks. The buying movement in the local jobbing trade continues to make rapid gains, and very few complaints are heard. With the exception of news print, and certain grades of manilas, prices are being firmly upheld. Competition in newsprint is particularly keen between the domestic and Canadian producers, and many extremely low prices are reported daily. Certain factors in the local trade are underquoting everything in the market, and are circularizing the entire country offering prompt deliveries at considerably lower prices than are obtained elsewhere—in fact quotations as low as 1.80c. f.o.b. mill to one of the chief consumers in this city during the past week. It is understood that several long term contracts have been made at this price, though the bulk of the business is chiefly of a transient order variety. Though 1.80c. has been quoted on several occasions, passing business is placed by quite a few manufacturers on a basis of 1.92c. per pound at the mill; others, however, are obtaining 1.95c. In all appearances this market is decidedly weak, and a continuation of the present tactics on the part of the mills cannot but help mean a complete break in this market. Fifteen inch white manilas, also are in active inquiry and subjected to keen competition. Tissues are firm at current quotations. Coarse manilas and fibres, are moving in a seasonable volume at full figures. Boards are tending upwards in prices. Screenings are in active inquiry though fast being replaced by krafts. Book papers are moving steadily under the influence of a seasonable inquiry. With the exception of print papers, quotations are without change, as follows:

News, rolls, transient business, $1.90 to $2.05 f.o.b. mill.
News, rolls, contract renewals, $1.90 to $2.00 f.o.b. mill.
News, sheet, $2.10 to $2.15 f.o.b. mill.
Book papers, car lots, C. & S. C., $4 to $4.20 f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90 f.o.b. mill.
Writing paper, superfine, 11c. to 13c., del. east of Miss. Riv.
Writing paper, extra fine, 10½c., del. east of Miss. River.
Writing paper, No. 1., fine, 9c., del. east of Miss. Riv.
Writing paper, No. 2, fine, 8c., del. east of Miss. Riv.
Writing paper, engine sized, 4½c. to 8c., del. east of Miss. River.

Bond paper, 6c. to 24c. delivered east of Miss. River.
Ledger paper, 8c. to 30c., delivered east of Miss. Riv.
Linen paper, 7c. to 18c., delivered east of Miss. River.
Manila jute, 4¾c. to 5¼c., delivered.
Manila wood, $2.40 to $3.00, delivered.
Kraft, No. 1, $3.65 to $4.00 f.o.b. mill.
Kraft, No. 2, $3.25 to $3.50, f.o.b., mill.
Screenings, 1¾c. to 2⅛c., delivered.
Boxboards, news, $30 to $33 per ton, delivered.
Boxboards, chip, $28 to $31 per ton, delivered.
Boxboards, straw, $29 to $31 per ton, delivered.
Wood pulp boards, $42 to $45 per ton, delivered.
Tissue, white, cylinder, 45c. to 47½c. delivered.
Tissue, fourdrinier, 47½c. to 52½c. delivered.
Tissue, jute manilla, 52½c. to 55c., delivered.

The British Markets

(Special to the Pulp and Paper Magazine.)

London, November 3rd, 1913.

The paper agents of the United Kingdom complain that "trade is not so good as it might be, but taken on the whole it is not bad and there is every likelihood of improvement in the near future." Price cutting is against any fair and reasonable profit being made. The manufacturers, of course are holding out for their full prices whenever an opportunity arises, but the conditions of trade vary so much lately that they find it hard to squeeze in the extra 2½% or 5% as the case may be. Most of the mills where machine—made paper is turned out are fairly well occupied except in the North of England, with home and export orders of all kinds and employment is not lacking. The hand-made paper mills could do with more business, as complaints are being made against the orders that have reached them during the past two months. Employment in these mills shows a falling off. Newsprint, fine writings and fine printings find a good outlet in consuming channels but the non-settlement of the book-binders dispute has not created a great demand on the part of publishing houses. Printers here are now inclined to ask for papers firmer and harder than the soft drying and easy to print English-made papers. At the moment, however, there is not a large demand for this crisper paper, but the tendency is toward it and Canadian paper should stand a great chance. It is a matter that should be enquired into by manufacturers through their agents. Most of the printing trade Journals have been recently commenting on the effective results obtained on paper made in America and Canada. One journal says: "In newsprint, that from America has generally a higher finish and is firmer in handling than either the Swedish or English." Canadian newsprint is shipped here through States houses. Newfoundland newsprint is also looked upon with a good deal of favor amongst English printing houses. At the moment of writing there is an extra demand for wrappings.

* * * *

Sulphite and sulphate are not very keenly sought after by the British paper-makers. No doubt the dullness that prevails in paper circles is responsible for this. Very little business is reported by the pulp men to be passing, as compared with the corresponding period of last year, and the Scandinavians also complain of the slowness with which English buyers are entering the market. The shipments on contracts appear to meet all the requirements here at the present time. Sulphite news and sulphite easy bleaching have dropped in prices considerably. Prices are now as follows c.i.f. London, Manchester, etc.:

Sulphite, Bleached,	$52.80 to $57.60
Sulphite (No. 1), Easy Bleached	43.20 to 45.12
Sulphite, News quality	38.40 to 40.60
Soda, Unbleached (No. 1)	38.90 to 39.10
Soda, Unbleached (strong)	38.20 to 39.89
Soda Kraft	38.40 to 40 00

The mechanical pulp market is nore firm and enquiries are reported to have been received by producers regarding next year's delivery. Business at the moment is not very brisk, prices are hardening. The unfavorable water conditions in Scandinavia are inclined to influence the market here. Papermakers, however, are well stocked and only forward deliveries are talked about. Prices are as follows, c.i.f. London, Manchester, etc.:

Pine, 50%, moist prompt	$9.84 to $10.32
Pine, dry, prompt	22.70 to 25.70

Add a dollar extra for forward delivery.

* * * *

All over the country there is a scarcity of rags and dealers say that things look gloomy for the winter. Prices, however, are not hardening and the situation can only be relieved by increased energy displayed in collecting both rags and wastepapers at the different centres. The Esparto trade is in a satisfactory state. Good shipments are coming to hand and prices are firm—in fact the heavy freights are hardening prices.

* * * *

In the chemical trade business is very steady and the bulk of the contracts for next year have been closed. Bleaching powder is in active demand at $26.40 per ton. Caustic Soda is exchanging hands freely, current price being $49.80 per ton for 76 to 77% for 70 to 72%. Sulphur is scarce and firm at $26.40. Saltcake is $13.20 to $15 per ton is 10 to 16 cwts casks and Ammonia Alkali, 58%, is brisk at $9 upwards per ton.

* * * *

Mineral fillings for paper-makers use are all inclined to be dearer. The demand for mineral white, gypsum, pearl hardening, etc., is good. The China Clay trade continues busy and shipments are being pushed steadily forward. Prices are unchanged. Of the 5,000 men who were implicated in the China Clay strike, with the exception of about 60, they are all back in the pits again and there is no likelihood of any further trouble for a long time to come.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR TWO WEEKS ENDING OCTOBER 18th, 1913.

	Quantity.
Bleached Chemical Dry	636 tons
Unbleached Chemical Dry	16,164 tons
Chemical Wet	98 tons
Mechanical Wet	29,314 tons

Mechanical Wet:	
Canada	5,760 tons
Newfoundland	9,045 tons

Riordon Pulp & Paper Co., Limited, started their fourth large digester at Hawkesbury last week. This is the last one of the four new digesters, making ten in all. They are preparing to cook twenty-four hour cooks for about thirty tons of pulp a day. This pulp will be mitscherlich quality and will be available for the highest grade papers.

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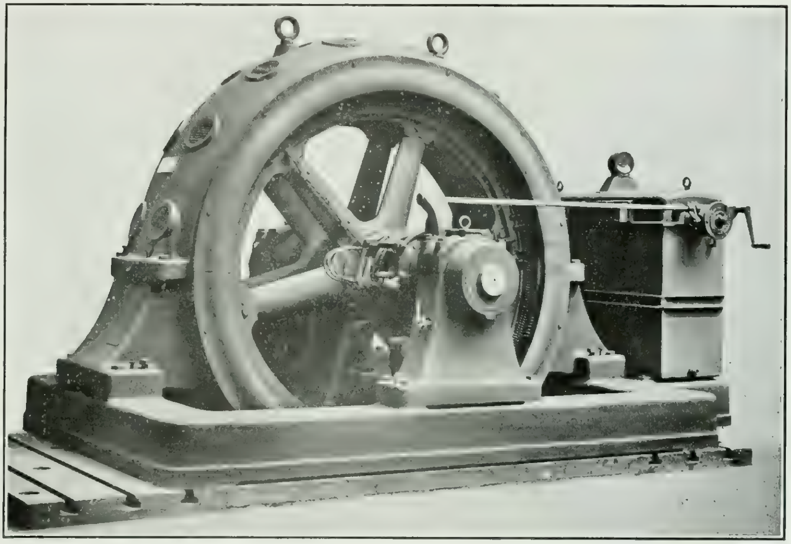

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- 1-1650 H.P. Dominion Coal Company
- 1-1320 H.P. Dominion Coal Company
- 2- 750 H.P. Winnipeg
- 2- 750 H.P. Port Arthur
- 1- 670 Nipissing Mining Company
- 1-540 H.P. Lethbridge
- 1-490 H.P. Dominion Coal Company
- 1-430 H.P. Acadia Coal Company
- 1-425 H.P. Edmonton
- 1-400 H.P. Dominion Coal Company
- 1-385 H.P. Nova Scotia Steel & Coal Co.
- 1-375 H.P. Canada Sugar Refining Co.
- 1-320 H.P. Acadia Coal Company
- 3-275 H.P. Port Arthur
- 1-275 H.P. Robert Simpson Co., Toront
- 1-270 H.P. Lethbridge
- 1-150 H.P. Nova Scotia Steel & Coal Co.
- 2-150 H.P. Acadia Coal Company
- 1-140 H.P. Novia Scotia Steel Company
- 1-100 H.P. Mitchell
- 1-100 H.P. Northern Ontario Light and Power Company
- 2-100 H.P. Winnipeg Technical Schools.
- 1-100 H.P. Larimer Company

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THE COMMERCIAL MANUFACTURE OF VISCOSE.

Chemical pulp used for making viscose must be as pure as possible, have a small percentage of ash and contain but few constituents which are soluble in soda lye (wood gums). Chemical pulp bleached too much is very injurious owing to its percentage of oxy-cellulose, and on the other hand chemical pulp bleached too little cannot be employed. Recently, large chemical pulp mills have paid special attention to the manufacture of chemical pulp for making viscose. The best chemical pulp was, however, supplied for a long time by a mill which had no idea that the pulp was to be made into viscose. The chemical pulp is not cleaned with hydrochloric acid or hydrofluoric acid as one sometimes reads. The boards are first cut into handy pieces and slightly dried. The drying may not proceed too far and on no account may it cause the chemical pulp to turn yellow. The chemical pulp is first treated with soda lye. The duration of the treatment may fluctuate between 30 minutes and 6 hours and must be found by trial for each chemical pulp. In some works it lasts indeed 24 hours and longer. The saturation with soda lye takes place generally in large iron tanks filled with soda lye in which the chemical pulp weighed out in wire baskets is suspended. After the action is sufficient the excess of soda lye is removed by hydraulic pressure or by a centrifuge. The latter is to be preferred because the percentage of lye in the pulp is then more uniform. The centrifuges must be fairly large, have a high speed and consist of the best material. The middle part of the centrifuge remains free in order that the lye may be thrown out very uniformly. After being centrifuged the chemical pulp must have rather more than three times its original weight. Quite definite limits must be maintain- which are dependent on the nature of the pulp. The pulp then passes through machines which are arranged similarly to those of the well-known kneading machines, which supply a loose mass similar to crumbled white bread; a rise in temperature occurs which may not be too great. The mass thus obtained is left for some time, when certain temperature limits must likewise be observed, if necessary by cooling or heating the rooms in question. The board must remain moist and the percentage of sodium carbonate may not rise too high.

For the conversion of the alkali cellulose into the xanthogenate a simple rotating drum is used, in which the material is thoroughly mixed with bisulphide of carbon; 30—33% suffices, a larger admixture being directly injurious. Preferably the process is stopped when the product has a light yellow or orange yellow color and is not continued until the initially loose mass becomes lumpy. Another sign for the termination of the process is given by a certain rise of temperature.

When working with bisulphide of carbon the same precautions are requisite as with benzine. During the rolling of the mass in the drum all blows and scratching movement between parts of iron must be avoided. Further, when bisulphide of carbon is inhaled poisoning readily occurs. Therefore the rooms in which bisulphide of carbon is employed must be built as large and airy as possible. The illumination must be from the outside, and when people are present both windows and doors must always be open.

The finished xanthogenate is dissolved in water of condensation or distilled water containing some soda lye. A large admixture of soda lye diminishes the viscosity.

Of the many precipitation agents sodium bisulphate, ammonium sulphate mixed with glucose, and thiosulphate come principally into question.

PAPER TABLE CLOTHS GROW POPULAR.

The popularity of the paper table cloth promises to come up to all expectations and was introduced to Chicago and the west only last fall and there has been a constant increase in the demand during the last few months and orders for early delivery have been gratifying.

"This paper cloth is made of pure wood pulp," said Mr. Whittier, of Chicago, "and it is tough and absorbing, made in double size 66 x 72 inches. Liquids dropped on it are absorbed the same as the blotter. One feature is that it will keep clean as long as the ordinary table cloth, and as it sells for ten cents this amount just about covers the sum expended for laundry on the linen cloth. In my opinion the paper table cloth will be a fixture and after it has been given a thorough trial this summer I feel that the sales next summer will be doubled."

TENDERS FOR PULPWOOD LIMIT

TENDERS will be received by the undersigned up to and including Wednesday, the 31st of December next for the right to cut pulpwood on a certain area situated on the M[illegible] River in the District of Temiskaming.

Tenderers shall state the amount they are prepared to pay as bonus in addition to the Crown dues of 40c per cord for Spruce, and 20c per cord for other pulpwoods, or such other rates as may from time to time be fixed by the Lieutenant-Governor in Council, for the right to operate a pulp mill and a paper mill on or near the area referred to.

Such tenderers shall be required to erect a mill or mills on or near the territory and to manufacture the wood into pulp and paper in the Province of Ontario, the paper mill to be erected when directed by the Minister of Lands, Forests and Mines.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for ten per cent of the amount of their tender, to be forfeited in the event of their not entering into an agreement to carry out the conditions, etc.

The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested, etc., apply to the undersigned.

W. H. HEARST,
Minister of Lands, Forests and Mines.

Toronto, Ontario, [illegible] 17th, 1913.

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Fifth National Conservation Congress

THE Congress held in Washington on November 18, 19 and 20, has been even more than the usual aggregations of the valuable information on the uses, growth and utilization of Forest resources. United States has done much to develop their work of conservation of their natural resources, especially in the Forestry work. The papers and information which have been given out at this Congress are as usual the most valuable contribution to the literature and information on the subject of conservation. The programme of Forestry section under Mr. H. S. Graves, the chief United States Forester and the reports of the various sub-committees on all phases of forestry utilization and investigation is extremely valuable to all concerned in the development of these resources and also whose livelihood depends on the manufacture or utilization of this valuable raw material. Among the most valuable subjects discussed of moment to Pulp and Paper interests were Publicity, Forest Planting, State Forest policy, Forest taxation, Forest investigation, Forest School Education, Forest Insects, Lumbering, Forest Utilization, Forest Fires, Federal Forest Policies and Water Power discussions.

It is not Forests, but the use of Forests that the advocates of conservation are seeking to perpetuate, therefore to convince, educational publicity must include the lumber business. So long as the public believe forestry good and lumber bad, there will be confusion and no real progress. Public education is the chief measure of progress of Forestry. If every citizen, in whatever capacity, fully realized all that this involves by the waste or preservation of forest resources; fully knew his own relation to the waste and what conduct of his would best serve his welfare and the communities; fully understood the economics of Forest Industry and fully comprehended the power and responsibility of Government in protecting the interest of their constituents, there would be little need of Forestry Associations and Congresses. This is why publicity is necessary and essential to a proper public estimate of the value of these resources in any country.

One of the most valuable of all the sub-committee reports is that by Mr. R. S. Kellogg of Wausau. Wis., on Closer Utilization of Timber in which he points out that:

Popular opinion holds the lumberman responsible for the wastage of 50 to 75 per cent. of the timber which he handles, this waste consisting of high stumps, broken trees, logs and uncut timber left in the woods, and sawdust, slabs, edgings and trimmings at the mills. The lumberman maintains that he saves as much material as he can at a profit, and that he should not be charged with wilful waste when he refuses to handle material which cannot be sold for at least the cost of production.

Conditions which make possible closer utilization in logging and manufacturing are:

1. Ready markets.
2. Cheap transportation.
3. Character of timber.
4. Efficient management.
5. Proper equipment.

Nothing can be saved unless there is a market for it. Mills located at points where there is a demand for all their products have practically no waste. Mills located far from consuming points often have heavy waste.

Transportation charges often determine whether material is utilized or thrown away.

Timber of one kind may be closely utilized, while timber of another kind, under the same conditions, may be so expensive to handle that only a small amount of it can be saved.

Efficient management, which is increasing, will help much in closeness of timber utilization.

The development of logging and manufacturing equipment has fully kept pace with the needs of the industry.

The present low price of stumpage makes it more profitable for the manufacturers of many small wooden articles to buy logs, and entire timber tracts than for them to make their products from the waste of lumbering operations.

The labor costs in handling waste material are often prohibitive.

Many by-product plants require such large investments and long-time supply material that their erection is possible only in connection with very large lumbering operations. The conditions surrounding many small operations are such that close utilization is impossible.

Material is saved only as it is valuable. Closeness of timber utilization is in direct proportion to stumpage values. In some large and well located Eastern lumbering operations, practically all waste is utilized because of high timber values and good markets for a wide variety of products. In many Pacific Coast operations where standing timber of low value is abundant, and sawing capacity in excess of market demand, there is much waste at present unavoidable.

Overproduction of lumber and other products is a prolific cause of forest waste. Overproduction results from unlimited competition in the exploitation of forest resources.

Much can be accomplished in decreasing forest waste through the education of the consumer to the use of grades and sizes of material now rejected. The consumer has the final say in the disposition of the products of the manufacturer. This is not a condition peculiar to lumbering alone. It applies to the market for all manufactured and agricultural products. A market for forest products equal to that in Germany would result in as close timber utilization in the United States as exists in Germany.

The lumbering industry needs more information than is yet available upon the merchantable products that can be obtained from trees of various kinds and sizes. Further investigation should be made of the costs of manufacturing many by-products, and of the conditions under which such operations are successful. The effect of unrestrained competition in timber exploitation upon our forest resources should receive serious study.

Another report always of vital interest is on the subject of Forest Fires which are destroying far more timber than is being cut each year. In no phase of forestry agitation has there been such remarkable progress as in the prevention of forest fires during the last few years. The United States has developed this work under the Federal Department much more than we have done in this country although Mr. Campbell has worked out a very efficient system Forest Fire Ranging in the Forestry Branch at Ottawa. Even, however, with the good which has been done, the men employed both in the United States and Canada are very much less than the value of the work would warrant.

Forest Fires in the United States according to the most conservative estimate given, cost annually about $25,000,000 in good merchantable timber and about 70 human lives. In that country there are a few private companies also who are spending a good deal of money in private fire protection. All but the Southern States of the Union have done something in this direction, but the work done is by no means adequate to meet the needs or commensurate with the return. One point that was brought out is that the railroad still continues to be the greatest single source of forest fires, but that the past six or seven years have seen a marked change on their part of one of indifference to one of keenest interest in assisting to prevent fires. The more general use of oil as a fuel has greatly reduced the number of railroad fires. The "Light Burning Theory" advocated by many people in this country and elsewhere, is especially to be condemned and is also impractical from a financial stand point, at the same time causes destruction of young timber as well as carelessness on the part of the public in fire protection. As pointed out in our news column the Conservation Congress was originally founded on Forestry Conservation and while the importance of other Conservations is realized, the time is ripe for specific Forestry work at all popular National Meetings in addition to the General Policy of education. In any case it is certain that there exists a need for a clearing house and organization with annual meetings such as we are providing from year to year in connection with the National Conservation Congress views can be exchanged and problems of mutual interest can be worked out to practical conclusions.

Forest Protection in Canada

A MOST valuable book has just been issued under the Conservation Commission by Mr. Clyde Leavitt, Chief Forester for the Commission and Chief Fire Inspector for the Railway Commissioner.

This book is most valuable to all interested in the conservation of our forests and deals with the subject of forest protection from a number of points of view, such as railway fires, forest fires and brush disposal, top-lopping, oil as a locomotive fuel, forest planting and other phases of this work. He points out that as a result of the fire patrols last season a great many forest fires were saved and that as a result much good has been done in this direction. The matter of lumber and settlers' slash comes up for attention with brush disposal This is absolutely necessary on account of the increase in stumpage values with a smaller margin of profit, competition and the need for intensive methods in operation. It has also come to be true that it pays to protect the young growth for the sake of later cuttings, especially in pupwood sections. It is pointed out that this is really no hardship upon operators, although in many cases they strenuously object and claim that it is. All these restrictions are, of course, taken into consideration in the purchase and license price of all limits. There are four general methods of brush disposals which are more or less closely related to burning, lopping, lopping and piling, over lopping and scattering. Much of this has it peculiar advantage or disadvantages according to conditions, but the conclusion is well warranted that brush disposal under ordinary conditions is a feasible proposition. One of the most interesting discussions is the use of oil as a railway locomotive fuel. Our attention has been called to the serious fires, especially in the Province of British Columbia arising from railways. At the present time, we have in this country 115 miles on the Cascade Division of the Great Northern running on oil. During the year 1912, the C. P. R. established oil burners between Kamloops and Field, B.C and on the Arrow and Okanagan branches a total of 338 miles. It is now announced that this line will during the current year extend the use of oil burners over the main line between North Bend and Vancouver 129 miles. When the proposed change is completed, the total mileage under oil on the C. P. R. in British Columbia will be 177 miles with only 180 miles using coal. It is expected that eventually oil will be further used by other divisions and other roads. On this point, the conclusions which Mr. Leavitt draws are as follows:

Conclusions.

(1) Sparks from coal-burning locomotives have in the past been a prolific source of fires.

(2) No fire-protective appliances have yet been devised which will wholly prevent the escape of live sparks from the stack.

(3) It requires close and continued inspection of fire-protective appliances, in order to maintain coal-burning locomotives in a condition of minimum fire danger. The inspection furnished in the past has not, in the case of most railway companies, been thoroughly efficient.

(4) The use of oil as fuel eliminates very nearly all the danger of fire due to locomotive operation.

(5) If the oil-burning apparatus is properly installed and maintained, and there is careful and intelligent operation by experienced men, the question of fire danger practically ceases to be an element in the problem. Little if any greater degree of care and experience is necessary with oil burners than with coal burners. The men must, however, be properly drilled to start with.

(6) The improper installation, maintenance or use of oil-burning appliances may, however, result in serious fire danger,

(7) Even with the best use of oil-burning appliances, there will still be danger of fire along railway lines, due (a) to carelessness by passengers or others in throwing burning cigars or cigarettes on the right-of-way; (b) to careless or malicious action by tramps, or other pedestrians, in leaving camp or other fires burning along the right of way; (c) to carelessness of section men in the use of fire, in clearing the right-of-way; (d) other miscellaneous acts of carelessness by railway employees or the general public; (e) natural causes (infrequent).

(8) In general, the establishment of a special system of fire patrols may be dispensed with along railway lines where oil is used exclusively as locomotive fuel. Watchfulness must still, however, be exercised by train and section crews in reporting and extinguishing any fires found burning along the right-of-way. In extreme cases, special patrol may still be necesssary.

(9) The removal of inflammable material from the right-of-way is essential, even in oil-burning sections, on account of the possibility of fires from causes other than locomotive operation. The usual relaxation of patrol measures renders this especially important in oil-burning territory.

(10) A reasonably efficient system of railway fire-protection can be established in coal-burning territory by: (a) the maintenance in proper condition of the best fire-protective appliances on locomotives; (b) the maintenance of an efficient system of special patrols, supplemented by the issuance to all regular employees engaged in train and track work of special instructions with regard to the reporting and extinguishing of fires. In sections where the fire danger is inconsiderable, special patrol may not be necessary, provided suitable instructions to regular em-

ployees are issued and enforced; (e) the proper clearing from the right of way, by burning at a safe time, of all unnecessary combustible matter.

(11) The great increase in oil-burning mileage on railways is due primarily to the fact that a saving can thus be made in operating expenses. Fire prevention has in general been a secondary consideration, except in case of a requirement for the use of oil being made by some governmental authority.

(12) The constantly increasing price of fuel oil is seriously retarding the movement towards its more general use by railways.

(12) All the measures the railway companies can be expected or reasonably required to take toward fire protection, can never be wholly efficient, as long as lands adjacent to the right of way are allowed to remain covered with slash and other inflammable debris. The present condition in this respect is thoroughly unsatisfactory, both in Canada and the United States, and legislation is urgently needed .

(14) The advantages of oil over coal as locomotive fuel may be briefly summarized as follows:

(a) Cheaper cost (within limited territory);
(b) Fire hazard greatly reduced;
(c) Greater efficiency for hauling where trains are heavy, or where grades or snow conditions are extreme.;
(d) Easier and therefore cheaper to handle than coal;
(e) Greater comfort of passengers; elimination of cinders and smoke;
(f) More reliable steam producer, insuring steadier maximum pressure;
(g) Less deterioration in storage than coal; less waste in general;
(h) Less effort in firing, and consequent ability to retain better men;
(i) Less cost for hostlers, engine crews, and other labor; time saved in fueling; no ashes to handle;
(j) Engines not out of service for flue cleaning;
(k) Increased mileage with same or less fuel weight and space;
(l) Saving of time means fewer engines needed;
(m) Great economy for intermittent service, since fires can be readily put out and started; no waste due to banking of fires.

This should be sufficient to induce all railways to at least seriously consider using oil on practically all their lines.

On the whole, the status of forest protection in Canada is by no means as high as it might be, but we have done much and it will probably advance considerably if all interested in the preservation of forests urge these points.

Editorial Comments

The Paper Makers' Association of Great Britain and Ireland met on November 11th as reported in our news columns with a small attendance. It seems that in England they have not yet gotten over the idea of being suspicious of one another and that their association is really of little value to them. They evidently have not profited by the example and advice of Mr. Hastings, who has developed such a remarkably efficient association for the United States. It seems to us that with matters of such moment on hand as the British Paper Makers have, with the federation questions, recent strikes in which the mill owners were badly defeated by the unions, that the association must be dead indeed not to be able to come together for efficient operation and mutual protection. In this connection, both Englishmen and Canadians can take a leaf out of the Americans' book and come to appreciate the value of united and organized action.

* * * *

The workmen's compensation bill drafted by Commissioner Sir William Meredith by the Legisture of Ontario, will be an act which gives full justice and humanity to all workers. This Commissioner has spent three years studying the features of European, American and Australasian systems. In respect of collective liability on the part of employers has been closely adhered to, it also embodies some of the merits of the English and other systems. The present day conditions make it more than ever equitable that justice be done both to work and to the employers themselves. The old common law exempting an employer from liability, where the employer was guilty of negligence or where accident occurred, caused by a fellow servant, is not now regarded as a fair basis in modern work. The Legislature, however, are adopting the principle of unrestricted liability by the employer. This is sometimes extended too far by the agitation of Labor Unions, but in general it is the most equitable basis and as such must be placed as a tax on the product. In such an intricate scheme there may sometimes be cases of individual injustice or hardships, but in its essentials the proposed plan of Commissioner Meredith, is fair to the worker although it places a heavy burden on the employer. The inclusion of occupational disease in the compensation scheme, as in Britain, ought to lead to a high average of sanitation and health protection in lines of industry inimical to health. Cases under this head would be comparatively infrequent but as they would be fought out on medical testimony it is well that there should be no appeal from the special commission administering the Act. The long-drawn-out litigation, which makes accident-compensation laws so often farcical, would, and should be made impossible by the proposed scheme.

The report of the Hon. Jules Allard, Minister of Lands and Forests, presented to the Legislature of Quebec recently, shows receipts amounting to $1,670,000, which is a record revenue for the Province. Part of this was derived from the sale of 194 acres of land. The Province has still 7,082,628 acres in its possession, but the chief revenue is sub-divided-as follows: From the woods and forests department the cutting licenses alone giving $1,134,167.19 the rent $330,203.09, and penalties, interest and rights to transfer other amounts bringing the total up to $1,510,171.41. 1,946 perfect titles were given during the year as against 1899 of the previous year This shows the wisdom of the policy of the Quebec Government in the conservation of our Forest resources as well as water power. Sir Lomer Gouin's policy is meeting the approval of every one interested in the manufacture of Pulp and Paper or in the general advancement of the Province.

COST ACCOUNTING.

Some time ago the vice-president of the American Paper and Pulp Association representing the Wrapping Division, Frank L. Moore, undertook the work of having the wrapping paper manufacturers agree upon a method of cost accounting, and to adopt it as a uniform practice. In this effort he has met with considerable success and the impression is growing that the time importance of such action has not been heretofore fully appreciated.

Recently a letter came under our observation, written by a manufacturer who had been induced to try out the system of cost accounting which was recommended by the wrapping paper division. The writer was frank enough to make the confession that by the use of an inadequate system he had for a long period been deceiving himself as to the actual cost of manufacture in respect to certain lines of goods; a confession which doubtless many others would make if they could be persuaded to perfect the systems they are now using. Among other things, this particular writer said: "We have been working this system with very gratifying results for several months, and have discovered through it how to eliminate many losses, having discontinued the making of some grades which have been eating up the profits of others."

The trouble is that so many manufacturers who are engaged in producing different lines of goods are satisfied at the end of the month or year to have their books show them just what the average return has been upon their investment; but that is not sufficient. A manufacturer should know exactly what every article is costing him in its production as accurately as if he were making nothing else.

It is not only due to himself that he should have this information, but it is a duty he owes the consuming public. If, for instance, he continues year after year producing one article at a loss, in order to procure a reasonable price on his investment, he is obliged to fix his selling price in a manner that will put the burden of this loss upon some other article, where it is unjustly borne. It means simply that if the consumers of a particular article are paying less that it is worth, then the consumers of other lines must pay more than they should in order to prevent financial disaster.

Every grade of production should bear its own burdens, unless there is some exceptional condition to require a different course to be pursued. No manufacturer is ever justified in continuing to make an article upon which a loss is sustained. If, therefore, it be disclosed by the adoption of a thorough system of cost accounting that his practice has been wrong in that regard, there is one of two things he must in reason do—either advance the price of the article upon which a loss has been sustained, or if that cannot be done, discontinue its manufacture.—(Paper.)

SULPHITE CELLULOSE WASTE LYE.

In a discussion of the above subject, Professor Dr. A. Stutzer, of Konigsberg (Germany), states that some twenty years ago he was actively engaged as expert in lawsuits between the owners of cellulose factories and landed proprietors. His efforts were directed to finding a use in agriculture for these waste substances. A medium sized cellulose factory, producing daily 17,500 cubic feet of waste lye, lets 50 to 60 tons of organic substances from the wood treated flow into the stream in a dissolved condition. This leads to unpleasant conditions in large rivers, particularly in the summer.

Dr. Stutzer's efforts were devoted to using these organic substances as cattle feed, but he could not remove the products of decomposition of the tanning substances contained in the wood, which formed indigestible combinations. Better prospects would seem to attend the use of the organic components of waste lye in supplying the want of humus in soils. For this purpose, it is considered important for the cellulose industry to deliver the waste lye in a dry condition, ready for strewing; and possibly mixed with the requisite vegetable nutritive substances.

After continuing his experiments for a long time, Dr. Stutzer, in 1911 and 1912, undertook further tests with the assistance of his pupil, Dr. Thalau. He found that the neutral sulphate of lime introduced into the ground does not injure the vegetation in argillaceous and sandy soils. The object of the use of waste lye can be only to supply the want of humus, or possibly of nitrogen; but not for marshy soils.

The questions to which chief attention was directed were:

(a) To increase the action of soils deficient in humus, through the introduction of organic nutriment.

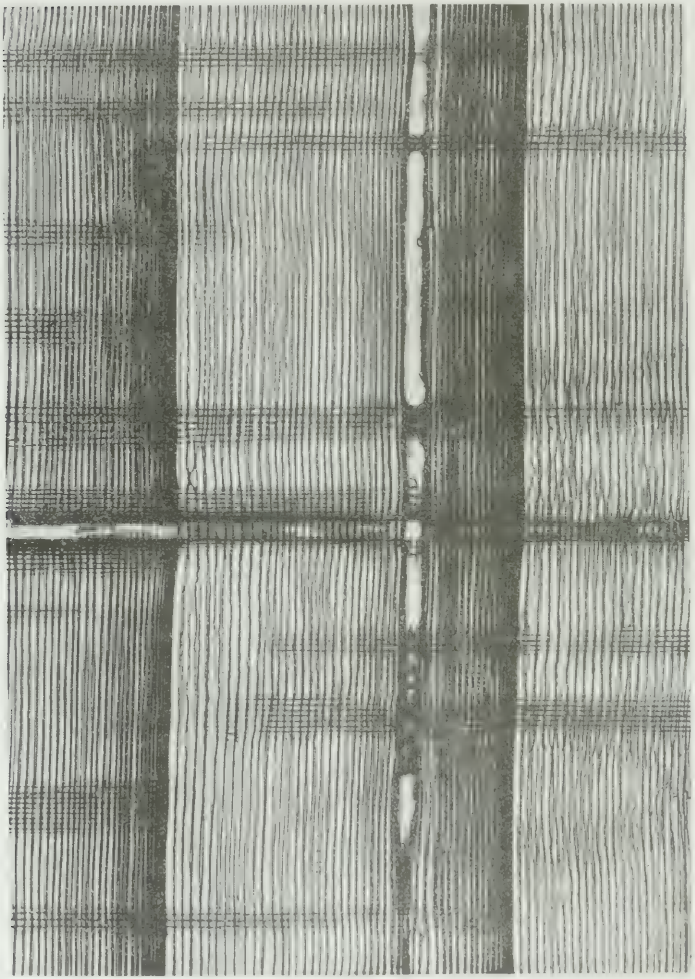
(b) To afford certain kinds of bacteria, by means of the energy stored in the organic substances, the possibility of extracting nitrogen from the air and enriching the soil with it.

The work of previous scientists in these directions is summarised by Dr. Stutzer. He found that certain bacteria existing free in the soil, after consuming the soluble organic substances, increase the store of nitrogen in the soil.

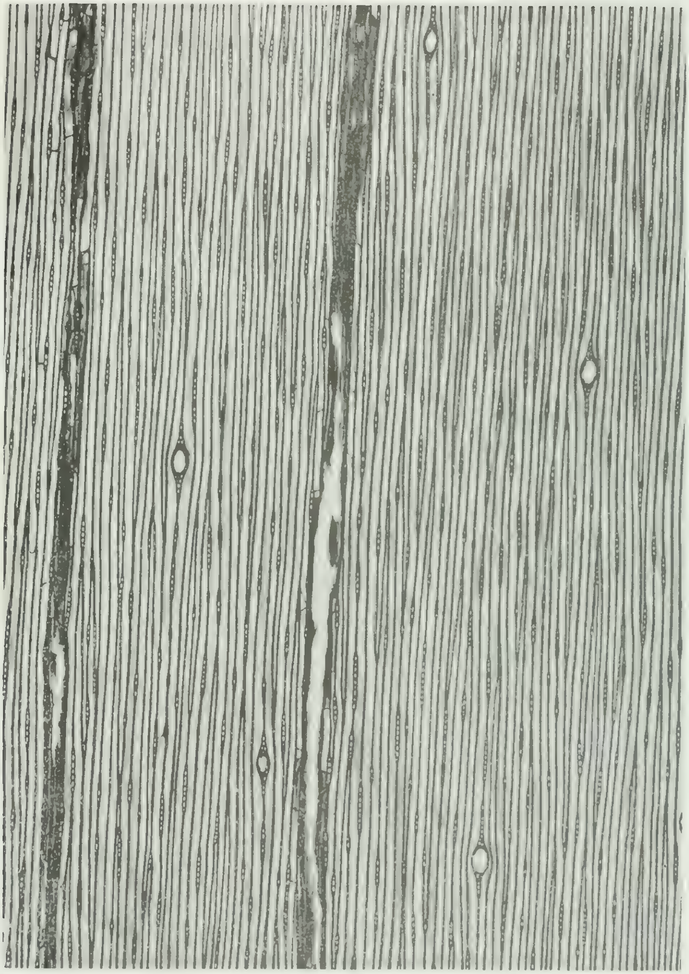
The use of the waste lye of sulphite manufacture, from which the acid has been removed, or which has received other suitable treatment, is considered likely to furnish a suitable means of improving the character of soils deficient in humus and nitrogen. From a hygienic point of view the proposal is likewise of importance.

Micro. Photographs of Paper Making Woods---SPRUCE

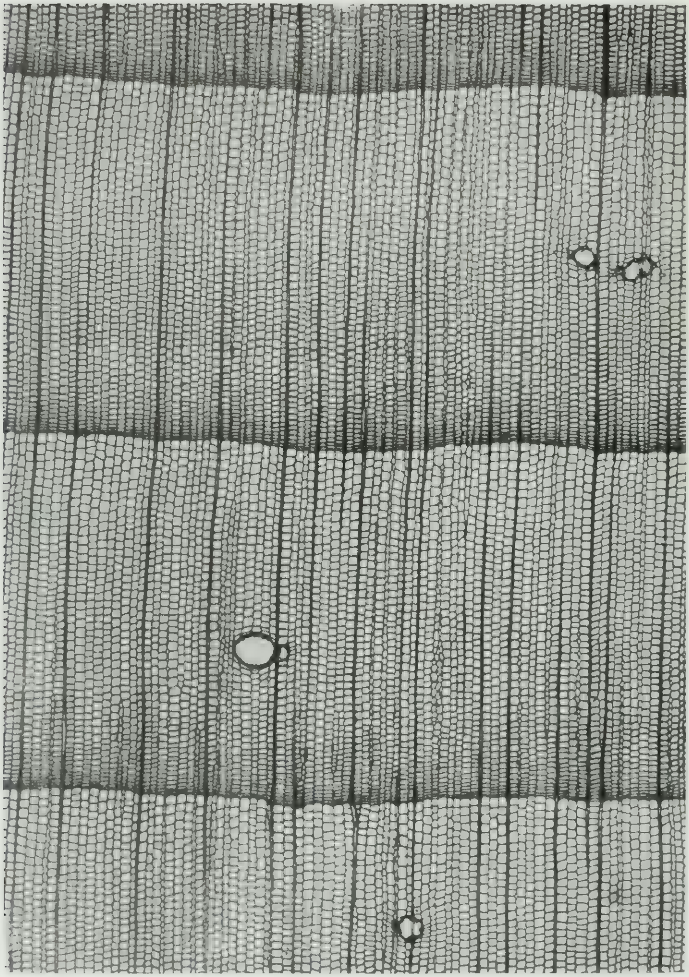
By H. D. TIEMANS, U.S. Forest Products Laboratory, Madison, Wis.



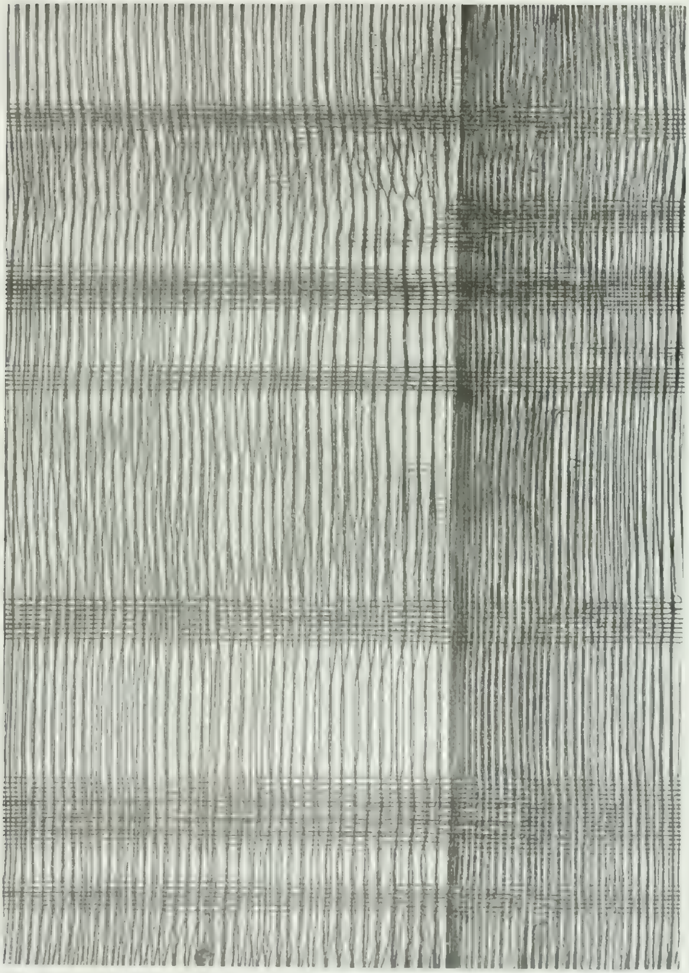
BLACK SPRUCE Picea Nigra, Radial X 50



BLACK SPRUCE—Picea Nigra. Tangential X 50



BLACK SPRUCE—Picea Nigra, Transverse X 50



SITKA SPRUCE Picea Sitchensis, Radical X 50

EFFICIENCY ENGINEERS SAY THERE ARE NO PRACTICAL OBSTACLES TO THE PLAN

Probable Effect of Change on Cost Per Ton of Newsprint Paper

IN OUR issue of this Journal, June 1, 1913, there was published a most interesting and informing report by the Associated Efficiency Engineers, Inc., dealing with the advantages of a five-day working week as compared with a six-day week in a board mill. Below we present a report submitted to President Hastings of the American Paper and Pulp Association by the same firm of efficiency engineers in connection with a newsprint paper mill. The report deals with the possibility of eliminating Sunday work on the part of men employed on direct labor operations and the limiting of such Sunday work to a relatively small repair force. The probable effect of a change in operating schedules of the kind indicates upon the cost per ton of newsprint is also the subject of careful study in this report, a perusal of which is strongly commended to all interested.

The object of the work outlined in this report was to investigate the possibility of either limiting or eliminating the labor operations at a news mill which are customarily performed on Sunday.

Our investigation was limited to an analysis of such production, cost and pay roll records as were to be found at the general office of the paper company, and our conclusions therefore are based upon this data exclusively.

As a result of our investigation we present certain conclusions regarding a possible operating schedule which contemplates the elimination of a large part of the Sunday work now performed.

Based upon this revised schedule we have determined, within reasonable limits, the effect which this change in operation would have upon the cost of production of newsprint paper.

The first step in the work was an analysis of Sunday work through a detailed study of workmen's time cards. The total labor force at a mill was classified into twenty-three sections and the time of each employee operating in each of these sections was divided as between the number of hours worked on Sunday and the number of hours worked during weekday shifts. By summarizing these figures for the respective sections the proportion of time spent on Sunday work was obtained for each section. These figures are given in the following table in percentage form.

Table No. 1.

Ratio Sunday Work to Total Pay Roll.

	Section	Per Cent Actual Hours.	Per Cent Pay Roll Hours	Per Cent In $
Wood handling..	3	3.6	5.2	5.2
Wood room	4	6.3	9.5	9.4
Grinders	5	9.3	13.4	14.2
Gr. wood screens	6	10.1	14.5	14.5
Gr. wood presses.	7	3.5	5.1	5.1
Acid plant..	8	11.0	15.5	16.5
Digesters.	9	7.5	10.8	11.7
Sulph. presses	11	6.9	9.0	12.7
Beaters..................	12	5.1	8.6	7.1
Paper machines...........	13	1.9	2.8	2.1
Finishing................	14	3.7	5.9	5.4
Indoor misc..	15	6.4	9.3	9.3
Outdoor misc.............	16	5.1	7.4	7.8
Steam plant..............	17	10.2	14.5	14.5
Repairs	18	14.6	20.4	20.3
R. R. operations.	20	0.8	1.2	1.2
Screen plates............	21	5.1	7.5	6.7
Construction.............	23	10.6	15.1	14.5
Average.............		7.2	10.4	10.2

It will be noticed after an inspection of the foregoing table that the Sunday work represents an average of 10.4 per cent. of the total weekly pay roll hours. As a matter of fact a study of individual time cards shows that there were numerous instances where men did not work a day or so during the week and then put in very long hours on Sunday, under conditions where they obtained 50 per cent. more in wages per hour. This might be taken as a general indication of the fact that they were nursing their Sunday work to fatten their weekly earnings. While this assertion cannot be made merely from analysis of time cards, our experience in other mills leads us to the belief that this condition actually prevails and is generally practiced where labor is employed under similar conditions.

As an indication of the high wages earned on Sunday we append the following figures taken from a single week's pay roll.

Table A.

No. Employees	Sunday Daily Wage
15	$2.00 and under
5	2.00 to $2.50
70	2.50 to 3.00
36	3.00 to 3.50
59	3.50 to 4.00
27	4.00 to 4.50
18	4.50 to 5.00
17	5.00 to 5.50
11	5.50 to 6.00
6	6.00 to 6.50
3	6.50 to 7.00
4	7.00 to 7.50
1	7.50 to 8.00
1	8.00 to 8.50
1	8.50 to 9.00
3	10.00 to 10.50
1	11.00 to 11.50
1	11.50 to 12.00

223 Men

In presenting these figures it should be stated that the Sunday hours were figured at 50 per cent. in excess of actual time put in by employees on all men employed at an hourly rate, as such employees were allowed "time and a half" for Sunday work.

Aside from the information given by these figures on the abnormal wages earned on Sunday, they also give evidence of the long hours spent by certain classes of employees without regular weekly rest periods. This must explain in part the low efficiency generally observed among paper mill employees.

The conditions cited as applying to Sunday work at the mill in question are not peculiar to this mill, but may be taken as characteristic of paper and board mills in general.

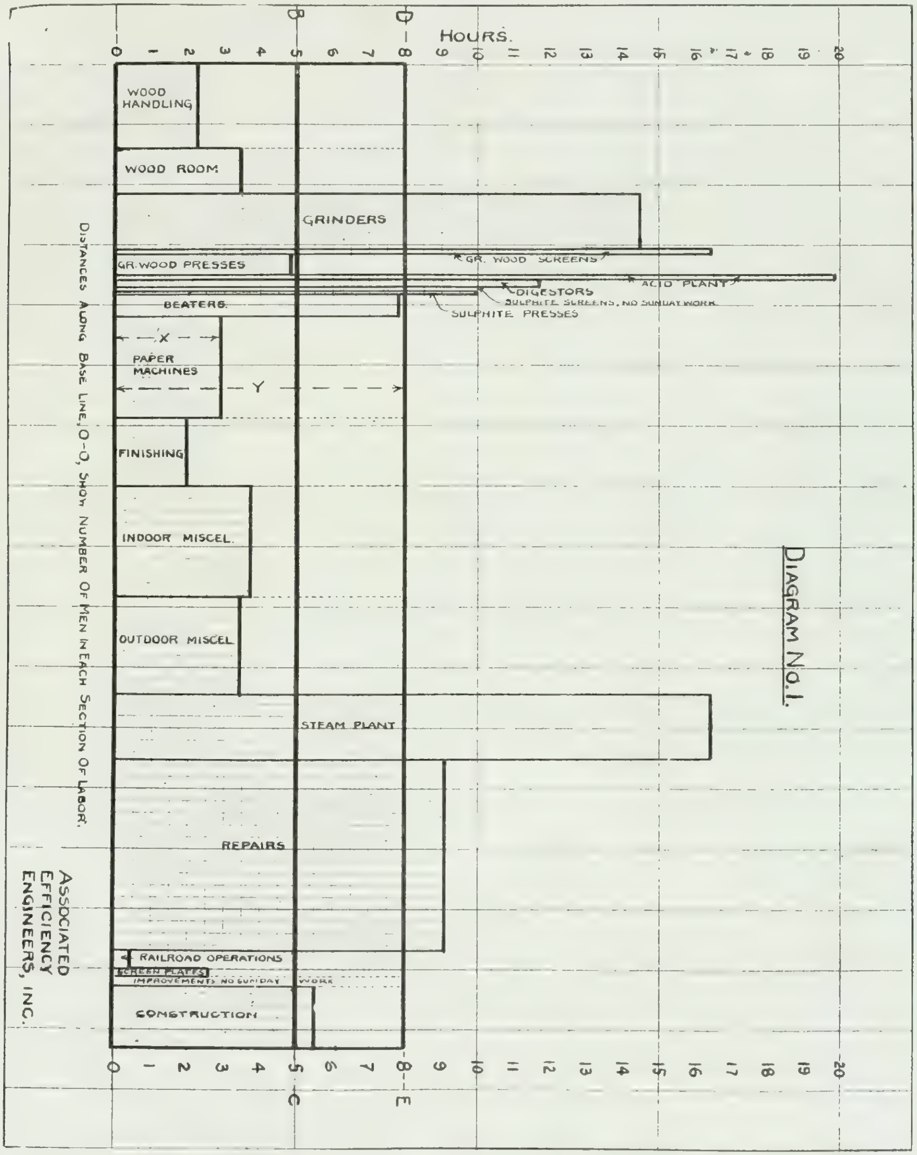


Diagram No. 1.

It is evident that in order to reduce or eliminate Sunday operations a portion or all of the Sunday work must be conducted during that portion of the week usually devoted to production.

To determine what proportion of the operating week would be sacrificed to repair work usually performed on Sunday, and the effect of the proposed change in operating schedule on production and cost, we have prepared the accompanying Diagram No. 1.

The base line 00 of the diagram is divided by perpendicular lines into sections which represent the divisions of classified labor given by Table 1A. The width of these sections between perpendiculars represents the scale of the number of men usually employed in each section during each operating shift or tour.

In analyzing the Sunday payroll the number of "man hours" of Sunday work was obtained for each section as indicated by the percentage figure in Table A. By dividing the number of man hours of Sunday work for each section by the total number of men employed in each section during the week day operations, we obtained the number of hours which a normal shift or tour would consume in performing Sunday work during a day shift or tour. This period of time is indicated by the horizontal lines on the diagram.

The diagram therefore shows a number of rectangles which represent not only the man hours of Sunday work but also the number of hours which a full shift would take to perform this Sunday work under week day operating conditions. It may be well to explain that the Sunday work is carried on, not by a full shift, but by a limited number of men working for longer hours than is shown by the height of the rectangles. In assuming that the same work could be performed in proportionately less hours for a greater number of men, or in other words, a full shift, a certain allowance would have to be made for loss of efficiency under latter conditions, which fact has been taken into account in our conclusions.

The vertical lines have been extended as far as the horizontal line D-E, which represents the eight hour tour, to illustrate the proportion of man hours of Sunday work as compared with the total number of man hours available in an eight hour tour. To illustrate this more fully as applying to the Section No. 13, representing Paper Machine Department, the rectangle of height marked X denotes the man hours of Sunday work, while rectangle of height marked Y represents the number of man hours available for a full paper machine crew for an eight hour shift.

Assuming that Monday morning is the proper time to assign to any work which has been eliminated from Sunday work in accordance with a revised operating schedule, it becomes necessary to select a period of time on Monday morning for repair operations which shall be equal to, or in excess of, the number of man hours of Sunday work. We find that the horizontal line representing five operating hours, shown on the diagram as line B-C, allows a fair margin over and above the man hours necessary for Sunday work in the past for a majority of the sections of classified labor forces. The diagram therefore indicated that if the mill started its production period at 12 o'clock, Monday, the necessary replacements, adjustments and clean-up could be made by each of the following forces employed on direct labor operations, between the hours of 7 A.M. and noon.

Section 3. Wood handling.
Section 4. Wood room.
Section 7. Ground wood presses.
Section 13. Machine room.
Section 14. Finishing room.
Section 15. Indoor miscellaneous.
Section 16. Outdoor miscellaneous.
Section 20. Railroad operations.
Section 21. Screen plates.

An allowance of five hours for the foregoing sections seems ample, as they all come well within the four hour line and it is probable that with such leeway as is given in allowing the whole five hours, a number of men from some of these sections could be despatched to even up the higher load in other sections.

The following sections while they overreach the five-hour limit, represent sections where there are only a few men operating, and it is judged that they may also perform Sunday work within the five-hour limit specified, through efficient planning of their work and by despatching men from other sections to reduce the load otherwise imposed upon them:

Section 6. Ground wood screens.
Section 8. Acid plant.
Section 9. Digesters.
Section 10. Sulphite screens.
Section 11. Sulphite presses.
Section 12. Beatermen.

Assuming therefore that all sections previously mentioned could perform the work uusally done on Sunday in the first five hours of the Monday shift, there remain only the three following sections of the pay roll which could in all probability require a certain amount of work to be performed on Sunday in addition to that which could also be performed by these sections on Monday morning.

Section 5. Grinders.
Section 17. Steam plant.
Section 18. Repairs.

The operating time of the grinders is governed largely by the mill operating time and water supply. If the paper machines were shut down from 7 A.M. to 12 o'clock noon on Monday the grinders could run during that time to accumulate pulp for the ensuing week, and the necessary repair work could be accomplished any time during the week.

Inasmuch as the work performed by the steam plant employees is largely of a repair or overhaul nature, Sunday work could be included as being repair or overhaul work and would be conducted by operating forces during the five-hour makeready period on Monday morning. The plan of organizing this unit repair force for Sunday work does not, of course, contemplate excluding a portion of the working forces in its makeup, but the number of men employed from regular operating forces would be confined to the steam plant force, except in cases of emergency.

In order to execute Sunday and other makeready work to best advantage and conform to the plan herewith outlined, a carefully determined schedule for Sunday repair work should be prepared at the end of each week comprising an estimate of the time that the most important repair jobs would take as well as the number of man hours to be devoted to them. The plan would also require careful supervision and dispatching of all labor operations occurring between the weekly shut down on Sunday morning and 12 o'clock Monday morning, at which time it is contemplated that normal production would be resumed.

An inspection of Diagram No. 1 and consideration of those matters which we have discussed in connection therewith, therefore leads us to conclude that the best expedient in eliminating Sunday work would be the adoption of the following schedule:

1. First tour to report for work 7 A.M. Monday.

2. Make ready period 7 A.M. Monday until 12M. Monday. During this period the operating forces devote time to adjustments, replacements, minor repairs, and general clean-up of plant. Repair forces complete work remaining over after their activities.

PRODUCTION PERIOD. To start 12 M. Monday and continue during remaining portion of first tour and through consecutive tours until 7 A.M. the following Sunday.

GENERAL REPAIR AND OVERHAUL PERIOD.—Limited to repair force and such portion of grinder and steam plant force as is necessary to work on long term repair work. Force to operate only up to such time on Sunday as will allow the completion of the remaining repair work to be done during the five-hour makeready period on Monday.

Conversion Cost of Paper.

To determine what effect this change would have on the cost of production of paper, each item of conversion cost was studied to determine to what extent it would be influenced by the change of operating schedule previously outlined. Inasmuch as direct labor was the principal item affected, the reduction in the amount of labor cost for a year was determined by crediting the total labor cost with that portion of Sunday work which our revised operating schedule and chart shows might be eliminated. It was found that the total pay roll would be reduced 5.2 per cent., this same percentage applying not only to manufacturing labor but also to repair labor.

In figuring reductions in other conversion cost items to conform to the revised operating plan, our knowledge of the variations in conversion cost items with a decrease in the weekly operating hours at other mills was used as a basis for adjusting the figures to the present plan.

In explanation of these reductions in the individual expense item it will be recognized that, in assuming that the operating period of the mill is to be cut down, we must also assume a reduction in those conversion cost items shown in the following schedule as being effected through a decrease in machine operating hours.

Table No. 2.

Reduction in Conversion Cost.

	Paper Per Cent	Gr. Wood Per Cent	Sulphite Per Cent
Mfg. labor	5.2	7.6	8.3
Pulp stone	...	3.0	
Felts.	3.0	3.0	3.0
Wires	3.0	3.0	3.0
Screen plates	3.0	3.0	3.0
Belting	2.0	2.0	2.0
Lubricants	2.0	2.0	2.0
Finished material	3.4		
Repair material	3.0	3.0	3.0
Repair labor	5.2	7.6	8.3
Fuel	2.1	2.1	2.1
Wood room waste	2.0	...	
Barn	...		
Misc. operating	2.0	2.0	2.0
Office	...	.	
General expense	...		
Ins. and taxes.			
Total in dollars.	3.55	5.05	4.80

The foregoing table shows the total conversion cost in dollars for paper has been reduced 3.55 per cent. Under our proposed operating schedule the production period during which the machines produce paper is reduced from 144 hours per week to 139 hours per week, or, in other words, a reduction in operating time of 3.47 per cent. By dividing this tonnage, which shows a decrease of 3.47 per cent. into the conversion cost which has been reduced 3.55 per cent. or somewhat more than the reduction in production, we find that the effect has been to **reduce the conversion cost per ton** of paper one tenth of one per cent.

Inasmuch as this mill manufactures sulphite and ground wood as raw material for news, it was necessary to find how the proposed change in operating schedules would affect the conversion cost of these departments. The pay roll as show on Table 1 represents the total for all departments in this mill, therefore the reduction in total pay roll stated will affect the ground wood and sulphite products, as well as paper. By employing the same methods as have been used for paper we find that the conversion cost of ground wood could be reduced 5.05 per cent. and that the conversion cost for sulphite would be reduced 4.80 per cent. as given by Tables No. 2 and 3 respectively.

Table No. 3.

Reduction in Total Cost of Ground Wood and Sulphite Fibre per Ton.

	Ground Wood		
	Present Cost Per Cent	Reduction Per Cent	Revised Cost Per Cent
Sulphur	..		...
Lime Stone.		.	...
Wood..	75.50		75.50
Total Stock	75.50	..	75.50
Conversion.	24.50	5.05	24.09
Total Cost	100.00	0.41	99.59

	Sulphite Fiber		
	Present Cost Per Cent	Reduction Per Cent	Revised Cost Per Cent
Sulphur	9.12		9.12
Lime Stone.	0.97		.097
Wood	65.56		65.56
Total Stock	75.65	.	75.65
Conversion.	24.35	4.80	24.01
Total Cost	100.00	0.34	99.66

Referring to these tables it will be found that the total cost of ground wood was reduced .41 per cent. and the total cost of sulphite was reduced .34 per cent. Having established these figures it therefore follows that the total cost of news would be reduced in accordance with Table No. 4.

In analyzing figures given in Table No. 4 we therefore find that, based on the premises assumed in this article, the total cost per ton of paper will be reduced .33 per cent. As has been shown previously, this reduction would be affected because of the reduction in conversion cost of paper alone amounting to .10 per cent. coupled with a reduction in total cost per ton of sulphite fiber of .34 per cent.; these cost reductions resulting from the revise plan of operation proposed herewith.

Table No. 4.

Reduction in Total Cost of Paper per Ton.

Stock	Present Cost Per Cent	Reduction Per Cent	Revised Cost Per Cent
Ground wood pulp.	39.92	0.11	39.73
Sulphite fiber.........	24.25	0.34	24.14
Wrappers............	1.86	0.00	1.86
Fillers..............	2.12	0.00	2.12
Alum	0.17	0.00	0.17
Color...............	0.33	0.00	0.33
Sizing..............	0.20	0.00	0.20
Total stock.	68.85	0.12	68.55
Conversion..........	31.15	0.10	31.12
Total cost.......	100.00	0.33	99.67

The operating plan submitted for the reduction of Sunday work has been formulated on broad lines of possibilities shown by general mill operating statistics. A study of the actual figures on which our percentage tables were based, lead to the belief that the conclusions drawn have been conservative and that there should be no practical obstacles to the successful operation of the plan outlined.

METHODS FOR UTILIZING SULPHITE LIQUOR.

A paper by Strehlenert in "Papierfabrikant" is thus summarized in the "Journal of the Society of Chemical Industry":—The chief organic constituent of the waste lyes is the calcium salt of lignin-sulphonic acid; this is soluble in water and is decomposed in acid solution at a high temperature in presence of air, yielding sulphuric and sulphurous acids and insoluble lignin. It is necessary to regulate the temperature and quantity of air to avoid carbonization of the precipitated lignin on the one hand and its formation in a gelatinous condition on the other hand. Under suitable conditions the lignin is precipitated in a granular form, which is easily separated and dried for use as a fuel; this fuel has a heating value of 7,000 cals., calculated on the ash-free substance.

In order to obtain the lignin as free from ash as possible, the calcium should first be precipitated by sodium bisulphate. The hot lyes from the digesters are treated with 1.5 to 2 per cent. of sodium bisulphate and the calcium sulphate is separated and dried for sale. The clear solution of sodium lignin-sulphonate is charged into pressure-vessels to about 60 per cent. of their total capacity and heated to 100 C. Air is then forced in up to a pressure of about 18 atm. The temperature rises about 20 C. as the result of the reaction and is slowly raised to 160 C.

The sulphurous acid liberated from the lye is oxidised to sulphuric acid which induces the decomposition of the lignin salt between 160 and 170 C. After a temperature of 200° C. or higher has been reached, which should be in about 40 to 60 minutes, measured from the time of starting from 100°C, the digestion is finished. At the critical moment when decomposition sets in (160° to 170°C.) the pressure in the vessel rises very rapidly and the sulphur dioxide liberated is blown off through absorption towers for recovery.

At the close of the heating period a feeble current of air must be blown through the liquid in order to granulate the precipitate. This air together with the excess of steam, is utilised to heat the contents of a second digester. The precipitate of lignin is washed and drained in the centrifuge until it contains about 50 per cent. of water. It may be dried further by any convenient source of waste heat, but should retain 20 per cent. of moisture when used for fuel, as when dry it burns too rapidly.

From the manufacture of one ton of cellulose about 10 cubic metres of lye are obtained, containing, when the digestion is performed with indirect steam, 11.6 per cent. of dry substance. From such a lye there were recovered 5 to 6 grammes of sulphur dioxide per litre, the original waste lye containing 8.6 grammes per litre; this corresponds to a recovery of 25 to 30 kilos of sulphur per ton of pulp.

NORWAY PULP.

Industry Unprofitable Because of High Price of Wood.

In the "Weekly Trade Report" issued by the Department of Trade and Commerce at Ottawa, the commercial agent at Christiania, Norway, writes

"It is reported that one of the largest pulp concerns in Norway is seriously considering closing down one of their two mills and selling the power from their waterfall to the Norwegian Nitrate Company. So unprofitable has the pulp industry become of late, that even at this mill, which is one of the most modern in Norway, a question of closing down is raised. The only cause for this is the steadily increasing lumber prices, which threaten to destroy all industry depending on wood supply."

The Skotsely Cellulose mill, at one time one of the more important mills in Norway, has, according to an article in one of the local papers, been sold to a stock company, in which a well-known mill is the principal shareholder. From being one of the best paying mills in Norway, at one time giving up to 20 per cent. profit, the Skotsely mill has during later years given only a very small, and since 1907 no dividend. Last spring the shares, which originally cost kr. 5,000 ($1,333.33), were written down to kr. 250 ($66.67.).

The Union Company, which has bought the majority of the shares in the Skotsely mills, now owns over half a dozen different mills, and in addition sells the production of another paper mill. The capital of the Union Company is 7,000,000 kroner, or about $2,000,000.

ABITIBI BUYS PUMPS.

The wide range of usefulness for electrically driven turbine pumps in the paper industry is shown by the order which the Abitibi Pulp and Paper Co. has just placed with Canadian Allis-Chalmers, Limited. It includes two high lift turbine pumps for ground wood stock each 4,000 U. S. gals. per min. against 116 ft. head 200 B. H. P., two high lift turbine pumps for grinder pressure supply each 450 U. S. gals. per min. 231 ft. head 40 B.H.P. and one high lift turbine pump for mill water supply 4,000 U. S. gals. per min. 173 ft, 250 B.H.P. There will also be two 14" centrifugal pumps for white water supply each 4,000 gals. U. S. per min. 35 ft. head and 75 B. H. P. and two 4" centrifugal pumps for slivers each 500 U. S. gals per min. 20 ft. head and 8 B.H.P. All these pumps will be driven by Canadian General Electric Motors.

WHO'S WHO IN THE PULP AND PAPER INDUSTRY

(A Series of Monthly Articles in the Pulp and Paper Magazine)

GEO. R. COPPING, Pres. Barber Paper and Coating Mills, Ltd.

By W. A. CRAICK

THERE is oftentimes a slur cast on very worthy persons because they are ready to accept positions in business or the professions to which they have not climbed by the usual rungs of practical experience. Yet it is a fact that a man may make an excellent postmaster without ever having dropped letters through a hall-door slit; another may become a capable editor without having gone through the drudgery of reporting police court cases; while a third may administer a manufacturing business, minus technical experience, far better than a practical manager, who has graduated from the work bench.

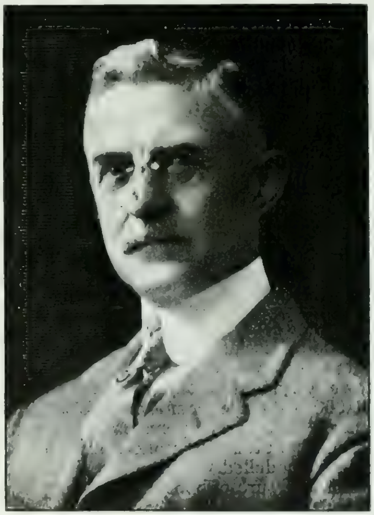
George R. Copping, who became president of the Barber Paper & Coating Mills, Limited, at the time of the re-organization of that old-established concern, never enjoyed the delight of watching a paper machine running on and on through the long hours of the night, nor in his younger days was he to be seen clad in rough shirt and trousers at work in the beater room. He had not even a speaking acquaintance with office or shipping room, nor so remote a connection with the paper industry as to occupy the post of salesman in a distant city. In brief, his knowledge of and acquaintance with, paper making up to a year or so ago were of the slimmest and most theoretical description.

Now, there are doubtless some papermakers who have been in the business almost since their infancy who will resent the introduction of Mr. Copping into this gallery of celebrities on the ground that he wasn't born and brought up in the trade. Yet this would not only be unfair to the president of the Barber Company, but it would mean overlooking one of the most important phases in the recent development of the paper industry in Canada, to wit the infusion of business ability and system into modern manufacturing undertakings. Mr. Copping merits attention because he is one of those business doctors, who has made it a specialty to diagnose the symptoms of commercial ailments and apply the necessary remedies.

When the Weldons acquired the Montrose Paper Company, T. A. Weldon, who had a warm friendship and admiration for George Copping, insisted that the latter should be taken in on the deal. Mr. Copping had already shown himself a good manager and a useful adviser and his presence on the board of the new company was welcomed. Thus, through the influence of finance, he was suddenly converted into a papermaker, although probably for the life of him he could not have told the wet end from the dry end of a machine. Since then, however, this same director has learned more about the practical end of papermaking than many another man would have absorbed in a lifetime and, being a studious and persistent sort of chap, he is keeping on acquiring knowledge.

To go back to the beginning George R. Copping was born in Toronto fifty years ago. (Some of his friends put it at fifty-one but, as he has not donned the past fifty look yet, the half-century figure fits in with his appearance better). He went to school until he was fourteen and then probably handed over his school-bag and books to a younger brother, while he joined the procession of clerks and mechanics that morning and evening entered and left the business of the city. His job was office boy in the old-time wholesale dry goods establishment of Bryce McMurrich and Company and he doubtless performed the duties of the position in the regulation manner, burying his grandmother at least once a year.

Ever since he drew his first month's pay from Messrs. McMurrich & Co., Mr. Copping's associations have been with dry goods lines. But it might as well have been groceries, hardware or plumbers' supplies, for all business is essentially the same and he was learning principles just as much as studying the texture of cloth or the quality of silk. When McMurrich & Co. went out of business in 1890, the erstwhile messenger boy had grown to man's estate and was a tolerably sagacious and expert man of business. He thereupon decided to go into the commission business and in partnership with G. A. Jones secured premises in Toronto and set up in the agency line, carrying and disposing of the output of a number of manufacturers. In 1900 the partnership was dissolved, Mr. Copping continuing the business, while more recently his son has joined him and the firm is now known as George R. Copping & Son.



GEORGE R. COPPING
Pres. Barber Paper and Coating Mills

So far the story of Mr. Copping's career is commonplace enough and might be paralleled by many other examples but during the last decade an important development took place. From being simply an agent for manufacturers he grew into a manufacturer himself, and now his industrial interests have become so extensive that he is pulling out of the commission business almost entirely, leaving its management in the hands of his son.

To trace the gradual evolution of the agent into the manufacturer would require a lengthy investigation. Suffice it that the change began back about 1900 when Mr. Copping became interested in the Standard Shirt Company, the product of which he was engaged in selling. From this company there has grown the Canadian Converters Company, of which he is vice-president and which controls four or five large shirt factories in Canada. Then about eight years back he himself started the Reliance Knitting Factory in Toronto, becoming its president. Still more recently he was induced by his friend and associate, C. B. Gordon of Montreal, to take hold of the Brinton Carpet Company at Peterboro, a business which was very sick indeed at the time, and to endeavor to bring it round to health. He was appointed its president and has succeeded in putting it on its legs again.

Then came his break into the paper industry as already related. When the St. Lawrence Paper Mills Company acquired the Barber mills at Georgetown, they were in pretty much the same position as the Montreal financiers when they got hold of the Peterboro Carpet Company. The mills had had a long period of usefulness and in their time were doubtless well equipped and operated, but the march of progress had left their system and much of their machinery behind. A big re-organization and shake-up was needed and who better to do the shaking than Mr. Director Copping. So the man who had cured the Brinton Carpet Company was given the task of duplicating his feat with the Barber plant, ... and he is still at it.

Mr. Copping is now devoting practically all his time to the improvement of the Barber mills at Georgetown. He estimates that it will cost at least $30,000 to place them on the desired basis of efficiency. The carrying systems throughout will be modernized, automatic stokers installed and the whole mill remodelled. Ultimately it is expected that the manufacture of book papers will be stopped and all the machines devoted to the production of specialties, for which the mill is better adapted. At the coating mill corresponding improvements are contemplated where an improved drying and carrying system is to be installed and other changes made.

The man who has undertaken the oversight of these changes is a pleasant unpretentious sort of chap, clean-cut of feature, neat of dress and an evident worker. He is a good type of the modern business man who has no nonsense in his make-up nor any extra opinion of his own importance. His friends describe him as long-headed, capable and resourceful. He himself admits taking a good deal of pleasure out of tackling difficulties and turning unprofitable industries into dividend-payers. In the business world of Toronto and Montreal he has many friends and is in close alliance with the Gordon interests in the latter city, but he likes to move along quietly and, being no self-advertiser, is not often mentioned in the daily press.

Mr. Copping takes his amusement in bowling and plays at the Royal Canadian Yacht Club grounds on Toronto Island. He was for two years president of the club. He is an enthusaistic islander and spends his summers across the bay, where he is actively interested in the Island Amateur Aquatic Association.

One of the principles which he has adopted and to which he attributes not a little of his success in management, is to give those principally concerned in the work of an industry, an interest in the business, either through a bonus system or by means of a commission. While the man of organizing or administrative ability plays an important part, and perhaps the most important part, in any industry, yet there are practical men such as superintendents and department heads, whose work becomes invaluable if earnestly applied. To get the zealous support of these individuals, some generosity of treatment is advantageous and this Mr. Copping has always insisted upon.

Fifth National Conservation Congress

Recommendation of Committee on Water Power.

(Special to Pulp and Paper Magazine.)

The Committee on Water Power, while finding a difference of opinion among its members as to certain details of the subject feels very strongly the importance of making clear the general principles which control it and realizes keenly the consequences which would follow a failure to agree upon a constructive program of progress. It has, therefore, framed the following brief statement of the recommendations upon which it is unanimous.

A grant of the right to use a water power, while differing in some details is essentially similar to a grant of any other privilege or franchise from the Government, state or National, and its terms, regulation and control should be guided by essentially the same principles necessary to safeguard the rights of the public and of posterity as have been found essential in the case of other classes of franchises from the Government. Partcularly is this true in view of the fact that a water power being perpetual will surely tend to increase in value as other sources of power, such as coal and oil, become exhausted. At the same time, for the very purpose of preserving our other power resources which are capable of exhaustion, the development of water power, under proper safeguards of the public interest should be earnestly encouraged and hastened. We recommend that the following principles should govern the granting of a privilege to use a water power:

(a) For a definite period, sufficient to be financially attractive to investors, the privilege should be irrevocable except for cause, reviewable by the courts;

(b) Thereafter the privilege should continue subject to revocation in the absolute discretion of the Government through its administrative board or officer upon giving reasonable notice and upon payment of the value of the physical property and improvements of the grantee as below provided under (h).

(c) After the expiration of the period provided for in (a) above, at recurring intervals of not more than ten years the amount of compensation to be paid to the Government for the privilege and all the terms and conditions of the grant during the next succeeding period of not more than ten years shall automatically come up for determination by the granting officer of the Government.

(d) The privilege shall be unassignable with the approval of the Government in order to safeguard the interests of the Government against speculation in water powers and against appropriation without prompt development.

(e) The privilege shall be granted only on condition of development of the whole capacity of the power site as rapidly as the granting officer may from time to time require, giving due consideration to reasonable market demands and conditions and also on condition of continuous operation, subject to such demands and conditions

(f) The right to receive compensation for the value of the privilege varying according to the proper conditions of each case shall be reserved to the Government, state or Federal, from whom the privilege cones. We believe that the reservation of such a right to compensation is a vital essential towards the end of proper regulation. It is not sufficient to trust that the public will always receive its proper share by means or regulation of rates alone. Local authorities may neglect or may be unable, under conflict of jurisdiction, or for other reasons, to exact in the interest of the public the full value of the public's right. The value of a water power may in the course of time increase far beyond the power of local regulation to adequately distribute its benefits. At the same time, the method of exacting compensation must be carefully safeguarded so that in case full compensation by rate regulation is exacted by local authorities, an additional burden shall not be imposed. We believe that in normal cases the best method is for the Government to share increasingly in the net profits of the enterprise, provided, those profits exceed a certain reasonable percentage, the right of the Government being recognized otherwise merely by the imposition of a small annual fee or its equivalent.

(g) The Government shall have the right to prescribe uniform methods of accounting for the grantee and to inspect its books and records.

(h) Upon revocation of a privilege by the Government the grantee shall be paid a compensation equivalent to the fair valuation of its property, exclusive of franchise and consequental damages; this compensation shall include such appurtenances as are necessary for the operation of the water power and the transmission of electricity therefrom but shall not include such properties as railraods, lighting systems, factories, etc., which are of themselves separate industries.

In such transfer all contracts for the sale or delivery of power made in good faith previous to such notice of transfer should be assumed by the transferee so that the said grantee may operate and maintain the power business during his occupancy of of the property under such stable gurantees as may beget confidence therein by prospective long term contractors, provided, that the Government or said transferee shall not assume any contracts made at a price or under conditions which shall be determined by the proper admistrative officer of the Government to be unreasonable or confiscatory.

MR. S. CHARLES PHILLIPS

Mr. S. Charles Phillips, head of the firm of S. C. Phillips & Co., London, England, and editor of the "Paper Maker" and author of the Phillips Paper Trade Directory of World, is on his annual tour through the United States and Canada. Mr. Phillips called at the Office of the PULP AND PAPER MAGAZINE and cheered us with his usual breezy and optimistic attitude. Mr. Phillips is probably one of the most well versed men on the pulp and paper industry of the world that we have to-day. He spends a great deal of his time travelling in all parts of the world where paper is made. He is very popular with his many friends in the pulp and paper industry and everywhere he goes receives the warmest welcome. His deep interest in the development of the industry in this country is shown by his frequent visits, as well as by his exceedingly complimentary write-ups, from time to time, and he has won himself many friends in this country. A great many English paper makers remember him in the old country as a cheery visitor and continue to welcome him in Canada although his visits are less frequent. We extend to him our cordial greetings and only wish that his visits wer oftener than annual affairs.

At the annual meeting of the Canadian Press, Limited, which was held in Toronto last week, officers for the coming year were elected. They are President, J. F. MacKay, Toronto Globe; First Vice-President, E. H. Macklin, Winnipeg Free Press; Second Vice-President, C. Gordonsmith, Montreal Telegraph; Secretary-Treasurer, J. E. Atkinson, Toronto Star. The Board of directors were also elected consisting of representatives from the different provinces.

MR. CROSSLEY REMARKS ON TESTING OF SULPHITE PULP FOR MOISTURE.

November 15th, 1913.

To the Editor:—

"Pulp and Paper Magazine of Canada."

An article by E. Sutermeister in the issue of the Pulp and Paper Magazine, November 15th, on the Testing of Sulphite Pulp for Moisture, gave evidence of much careful work, and is a distinct contribution to the literature of this much discussed subject. I am glad to see that Mr. Sutermeister has little use for the cumbersome "wedge system" but I regret that he is led to the same erroneous view-point that gave rise to that system.

Paper mills do not buy pulp one bale at a time or ten bales at a time, or in most cases even one load car at a time.

Pulp mills do not run pulp in one unvarying stream, same moisture, same thickness, same steam in driers, at least not under this dispensation. Thes conditions are assumed in this "position-is-everything" system, they do not obtain in practice. The middle sheets of a 250 lbs.-bale may be 25% drier or wetter than the outside sheets, not because of any gastronomic function of the bale or lapse of time, but because that's what was running when the middle of the bale was reached. It may have been the middle or the bottom or some other zone of some other incompleted bale or a short run of broke carefully stowed away.

The behaviour of loose bales of pulp exposed to a drying atmosphere in wareroom of the paper mill does not throw much light on the probable moisture contents of 300 bales of pulp closely packed in a well built freight car which the buyer's chemist has to sample. Discussion pro and con might be continued indefinitely on the vagaries of single bales or ten bales, but we must base tests on the units bought and sold. These are at least car load lots.

The writer's instrument for sampling and mode of sampling were developed by a series of tests on lots of from ten to twenty five car loads of machine dried rolls and bales, wet laps and hydraulically pressed laps chiefly from mills two of which shipped dry pulp and the others the two forms of wet lap respectively. In some cases, every bale in a car was sampled both at selling and buying mills.

The methods of baling or reeling prevailing in the mill whose product is being sampled, should be known, I am inclined to say **must** be known by the man who does the sampling. In most drying machines the presses are controlled by a system of compound levers of whose mathematical value the machine tender knows practically nothing. I have found a difference of five or six thousand pounds, in calculating the pressures on the two sides of a press. If the sheet were cut into three at the end of the machine and bales made in corresponding positions it would be natural to expect variations between the three bales, but if the three lots were only allowed to accumulate piles of sheets five inches deep and were them made into one bale, fifteen inches deep, we might have those three variables in several positions in the bale. Variations arising from such conditions cannot be settled by academic test on a few bales. The three tests made by a Mr. Sutermeister by the standard method, would have averaged I believe, closer if made of forty bales instead of ten. However, Sir, we are all inclined to dogmatize on our own necessarily limited experiences and I would beg to suggest that a commission or committee consisting of the working chemists both in selling and buying mills be appointed by means of some mutual agreement to tabulate and describe their results and methods for a period of six months, giving car numbers and weights in cases where it might be possible that such were retested at receiving mills.

The several reports of these chemists could be studied and compared by a committee of their number or some appointee say of the Forest Products Laboratory who would be able to set aside the principal agreements and the obviously weak methods and refer the debatable points back to the same chemists with request for further study and report.

Believe me Sir.

Yours very truly,

T. LINSEY CROSSLEY.

PAPER YARN.

When paper yarn was first introduced commercially, rather over twenty years ago, those financially interested in it had high hopes of its replacing jute to a large extent, and especially in the manufacture of sacks. Up to the present, of course, these anticipations have not been realised, though it must be admitted to have established itself as a standard fibre, and is now employed, either alone or more generally in combination with cotton, jute, linen, or woolen yarns, in the manufacture of quite a wide range of goods. There are two systems used in the production of paper yarn, both of which are of German origin. In the first process, known as the Kellner-Turk system, the wet paper pulp, whilst still on the paper machine, is divided into small sections, pressed, dried, and subsequently twisted—or, as the makers term it, spun—on special machinery, whilst in the second process, the Claviez system, dry, unsized paper is cut into narrow strips of from 6 to 12 mm. in width, wound on to bobbins, and then spun on a special frame.

There are several modifications of these processes worked by various Continental firms, and although the first mentioned would appear to have economic advantages, it presents many more practical difficulties, and seems to be losing ground in competition with its rival. It can be readily understood that paper yarn is by no means easy to weave. Its stiffness makes it difficult to manipulate, but with care it can be satlsfactory woven on the ordinary jute loom. Hitherto the chief use of piece goods from paper yarn has been for inside decorative work, and as upholstered material. It is also made use of for floor covering, whilst material made with a jute warp and paper weft is finding increasing employment in the manufacture of linoleum. Strenuous efforts have been made to popularise it as sacking, and the high prices which have prevailed for jute for some time past have favored its employment in this direction.

Ordinary paper yarn, however, has several inherent qualities which handicap it seriously as a substitute for jute in the manufacture of sacks. Owing to its smooth, stiff nature any but rather coarse material packed in these sacks is able to work its way out through the ihterstices in the fabric, whilst the cord with which the sacks are tied is very apt to slip, and the sacks are, moreover, difficult to carry. Jute warp and paper weft give better results, and sacks made from them are used to some extent. Recently a new fabric from paper yarn has been put on the market under the name of "Textilose," in which the smoothness inherent in the usual qualities is overcome by first covering the paper with a fine fleece made from cotton waste. The process has been patented by Claviez, one of the original workers on this subject, and is said to yield a product suitable for the packing of fine, powdery substances, and it appears to be used rather freely on the Continent for packing cement. Those who are backing it financially seem to have great confidence, for works for its manufacture are either running or are in course of erection in most Continental countries and in England.

One field in which paper yarn has advantages over jute is in the manufacture of sheeting for baling woolen goods, for here serious damage may be caused by the loose fibres attaching themselves to the contents of the bale if the paper covering in which they are first wrapped gets broken through. Although piece goods from paper yarn have not made very much headway up to the present, the outlook is not really unpromising, and it is likely that more will be heard of this material in the near future.

A company has just been registered in Paris with a capital of 11½ million francs, which may be increased to 20 million francs, to take over several European textilose concerns. The combination will include the English Textilose Manufacturing Company, Limited, Manchester, the Manufacture Francaise de Textilose, Paris, the Manufacture Belge de Textilose Brussels, and the firm of Fratelli Borghi, Milan. The style of the new undertaking is the Societe de Textiloses et Textiles. The German works engaged in the manufacture of textilose are being considerably enlarged. It is reported that another product made by a new patented process from paper yarn, and which is said to have advantages over other similar products as a substitute for jute, will shortly be put on the market under the name of "Stranfa." There is not much information available regarding this latest arrival, but the textilose interests profess to have no fear of it as a competitor, asserting it to be only suitable for coarse goods.

PAPERMAKERS' ASSOCIATION OF GREAT BRITAIN AND IRELAND.

(From Our London Representative)

On November 11th, the members of the British Paper Makers' Association were convened to attend a meeting in London, but only about 30 put in an appearance. This meeting is usually called the autumnal gathering and is a subsidiary to the annual, one when the arrangements are more elaborate and more convivial. Misfortune seems to have attended this year's autumn meeting and I must admit that I was greatly disappointed with the entire proceedings. I have come to the conclusion that the British Association will have to waken up and manifest the same interest in things as the Canadian and American Associations.

Now we started business in the afternoon in one of the first-class hotels, minus a secretary—who, I regret to say, was reported to be sick—and minus the book containing the minutes of the last meeting of the association. No minutes were, therefore, read so the members and two reporters—each reporter being "chaperoned" by an "editor" seated at a little table 2 ft. x 2 ft.—settled down to talk. Logicians often speak of fallacy of iteratis and petitis principii, and evidently realising this on the advice of a member it was agreed that "business" should be done, particularly as there was some intention of an informal dinner—minus vims—afterwards. Mr. Joseph Dixon (Messrs. Peter Dixon & Son, Grimsby Mill) was asked to take the chair he being a vice-president, and he readily consented. The agenda paper had three items on it referring to railway rates, demurrage, and the prices of paper. Mr. Dixon, from a very practical point of view, dealt with the hardship that British papermakers would suffer if the railways were allowed to go on adding the extra 4 per cent. increase on the freightage of paper carried over the systems, while another member said that it was cheaper to carry paper from Liverpool to Birmingham on the railway, than it was to carry paper from Darwen to Birmingham, the distances being about the same. Eventually Mr. Croft and Mr. Parker Smith were asked to attend the Mansion House Association in London and voice a protest on behalf of the papermakers. It is late in the year to take this step as the Association should have been tackling the railway 4 per cent. increase before last January and should never have rested until some staisfaction was obtained.

Demurrage charges on railway waggons kept under load beyond 48 hours was next discussed and the chairman thought this question affected paper makers or traders very little who were trying to carry on business reasonably. He knew people who kept waggons 14 days before sending them away and receiving them a month before emptying them. Other members expressed the opinion that consignments of over 500 tons should be given an extended period to get unloaded.

Prices of paper next came up for consideration and I expected to hear some practical suggestions. It was admitted that foreign competition and the increased cost in the production of paper prevented the papermakers in England making any profit. Some were of the opinion that the prices should be raised under the present circumstances, while another member suggested that a tariff clause be inserted in their contracts. Another member dealt with trade customs and said where paper lay in a mill for over six months it should be charged up to the customer. He had been told that only one mill made the exchange—and only one. Stock would go out a great deal faster if this course was taken by the members of the Association. This discussion ended the meeting, no definite arrangement being come to in regard to prices. Dinner was then announced and the majority of the members, followed by the reporters, left the hotel. Of course there was no speech making at dinner.

Now the meeting only lasted an hour or a little over it—and it seems strange that the Association never talked of the Federation question, or the labor unrest and past strikes, or of the pulp industry. There was not even a mention of the Insurance Act—which may drop on English papermakers the same as a similar Act has dropped on the Germans—nor a mention of pulp prices, or rags. British papermakers are very law-abiding, concise and rigid, and they very often leave one bewildered.

Fifth National Conservation Congress

(Special to Pulp and Paper Magazine.)

Washington, D.C., Nov. 20th, 1913.

As introductory to the proceedings of the Fifth National Conservation Congress, the Forestry Section opened its first session at 10 a.m., November 17th, in the Cabinet Room of the New Willard Hotel. The Forestry Section program included the presentation of ten sub-committee reports and their discussion.

In presenting its report on the forestry committee organization, the Committees stated that when the present Forestry Committee was appointed, following the meeting of the Fourth National Conservation Congress at Indianapolis in 1912, several of the public spirited men who had followed the developments took up the question of the most effective organization to represent the mutual forestry and lumbering interests involved. The desirability of such an organization was emphasized by the presence at Indianapolis of a number of men who were no longer in need of the general educational propaganda relative to the conservation of natural resources, but attended the Congress for the purpose of meeting progressive men in their own and related lines and securing specific information helpful in the solution of their own problems.

The need for a working organization and a rallying point, where mutual and more or less technical problems may be discussed, in fact particularly by the forestry and timber interests. The Conservation Congress was originally founded on forest conservation, and while the importance of other conservation subjects is realized the time seems to have come for specific forestry work at popular national meetings, in addition to the general publicity and education. It is merely a frank admission of the facts, continues the Committee, to say that the attendance and support of the forest conservation interests would have been lost to the Congress if it had not returned to the original theme; and not only this but the active workers in forestry desired an opportunity to exchange views on technical problems, so as to take home tangible information in return for their time and expense in attending.

The Forestry Committee of the present Congress was organized with the view of meeting, to some extent at least, the conditions which existed. The Conservation Congress offered the first essential in the way of a recognized national organization, with which active forestry committee work could be associated. The second need was financial and this was promptly met by the American Forestry Association, which provided the necessary funds. There then remained only the necessity of perfecting the proper organization of the forestry committee itself.

Various precedents have been established by older organizations for carrying on the character of work deemed most effective in this case. The plan which has given good results and is in general use is that of standing committees or sections assigned to various subjects, The American Railway Engineering Association and the International Congress of Applied Chemistry are good examples of this form of organization. The National Educational Association has carried the idea still further, to the point of having various independent sections, each with its own president and program. A central organization in each case holds the sections or standing committees together for the common cause. The needs of the Forestry Committee for this year seemed best met by the appointment of sub-committees to investigate and report on the more important forest conservation subjects.

As soon as this plan was decided upon ten sub-committees with four to eight members each, were appointed. The subjects covered the more important technical problems of forestry and lumbering and broad national questions involving legislation and regional public interests. The chairman and sub-committee members were selected on the basis of their experience and ability to contribute new knowledge on the subjects assigned, to compile the old in workable form, The list of committeemen is itself sufficient evidence of the seriousness and high character of the investigations undertaken. Several topics were suggested under each sub-committee subject, and the more important selected for this year's report. Practically all details of text and arrangements were left to the sub-committeemen. It is striking evidence of the importance and public interest in forest conservation that fifty busy men should freely give their time and thought to work of this kind.

Continuing, the Committee states that the printed reports, therefore, as presented to the Congress are not the views of rhetoric of any individual,but the mature conclusions of a body of experts, who represent all regions and all phases of forest activity. The necessary publicity to the sub-committee's findings will be given by printing and distributing the reports by wide circulation through the American Forestry Magazine and lumber journals, and by distribution among trade, technical and public service organizations.

By presenting these reports at forestry section meetings and giving ample opportunity for discussion, further information will be gained and that available will be disseminated. Those who attend will receive the benefit of the information given, and, in turn, by taking part in the discussions, will contribute to the fund of available knowledge, and add facts for use in the present or future revision of reports. Most of the subjects will continually develop new phases, and what is up to date or advanced thought or information to-day may be obsolete to-morrow. At the same time, there are fundamental principles which remain unchanged, and basic methods which once applied need revision only in detail. No one has any thought of being able to settle at once and for good and for all the many complex conservation problems. Recognizing, however, the evolutionary nature of the development, it is apparent that the broader and the better the knowledge and the closer the harmony among the various interests, the sooner will come security to the nation's timber resources and provisions for maintaining the needed supply.

The Forestry Committee states that it is not fitting to pass judgment on its own work nor to outline plans for the future. It is a temporary body which will go out of office automatically at the close of the coming Congress; while as to results, the accomplishments of the year will speak for themselves in the sub-committees reports and in the forestry speeches before the general Congress. It may not be out of place, however, to say that the form of organization adopted is in general effective, and that the results are even better than was anticipated. It is unfortunate that the present officers of the Conservation Congress, who have so consistently supported the work, and the Forestry Committee have a tenure of service so short that they can little more than inaugurate work of the kind which has been attempted.

From the standpoint of developing and establishing From the standpoint of developing and establishing basic policies, and in perfecting and applying technical methods in the various fields of forest activity, and organization along the line of the present Forestry Committee is certainly needed and premises to be effective. At the same time, such work can not be undertaken without a central national organization to lean on and funds to prosecute the work. Granting that a strong national organization is needed to carry on popular educational and publicity work, it would seem, continues the Committee, that the more specific and technical field could best be covered by a properly organized forestry committee, supported by and affiliated with the non-technical central organization.

Whatever the supporting organization and clearing house, it is certain that there exists a well-defined desire for an annual national forum of forestry and lumber interests, such as provided this year in connection with the National Conservation Congress, where views can be exchanged and problems of mutual interest worked out to practical conclusions. It would not necessarily be a large gathering, but essentially one of ways and means to accomplish many desirable things. The best basis for such meeting, the Committee points out, would be a permanent organization for investigation and report, probably through standing committees which would be directed by a general body, either an administrative committee or the directors of the parent organization.

Concluding its report, the Committee states that if specific mention was made of the individuals who have made possible a creditable showing this year, it would have to include every man on the Forestry Committee, every sub-committee chairman, and most of the sub-committee members. Mr. Charles Lathrop Pack, in his function as president of the Congress and outside of it, has given the strongest possible support to the Committee, and to him and to Col. W. R. Brown, Dr. Henry S. Drinker and Capt. J. B. White is due credit for the financial arrangements, through the American Forestry Association, which made the work possible. For the large amount of valuable Pacific Coast data, and for cordial cooperation in all the work the Committee owes its thanks to Mr. E. F. Allen.

A summary of the work of the Forestry Committee and its sub-committees, for the Fifth National Conservation Congress, includes—Publicity, Federal Forest Policy, state Forest Policy, Forest Taxation Forest Fires, Lumbering, Forest Planting, Forest Utilization, Forest School Education, and Forest Investigations.

CANADA'S LUMBER EXPORTS.

(Special to Pulp and Paper Magazine.)

Ottawa, Ont., Nov. 25.

That the figures for Canada's foreign lumber business for the first part of 1913 were considerably in advance of those for a similar period last year is shown by an examination of statistics of the Customs Department. Exports of forest products from Canada during the month of June, 1913, were valued at $4,323,636. This was nearly $300,000 less than the total for June, 1912, but the showing for the three months ending with June, 1913, indicates that the exports of forest products were valued at $9,232,914, being $263,511 greater than the total for the corresponding three months of 1912 and $1,114,141 greater than the total for the corresponding three months of 1911.

FAVORED NATIONS' CLAUSE.

(Special to Pulp and Paper Magazine.)

Washington, D.C., Nov. 26, 1913.

Word has just been received here from Berlin, Germany, to the effect that the most favored nations' clause in international treaties has been the subject of negotiations between Germany and the United States in connection with the question of the free admission of Canadian wood pulp into the United States under a clause of the Canadian-American reciprocity agreement. It is pointed out there that the United States applied to Germany for full equality of treatment under the treaties negotiated by Germany with Sweden and Japan in 1912 in view of the lapsing of the Canadian law regarding wood pulp. When later the United States took the standpoint that Canadian wood pulp and reciprocity did not come within the province of the most favored nation clause and that its benefits were not available to nations having such clauses in their treaties with the United States, Germany, also announced her adoption of a new interpretation of the treaties and withheld from American importers part of the reduced rates on steel, sills and other articles granted Sweden and Japan in the recent treaties.

TARIFF BILL CLAUSE.

(Special to Pulp and Paper Magazine.)

Washington, D.C., Nov. 20th, 1913.

With the hope of securing a clearer understanding regarding the 5 per cent. discount provision contained in the Underwood Tariff Bill, and which was turned down recently by the Attorney General, Representative Mann, leader of the House minority, has introduced two resolutions, one of which was to furnish the House of Representatives with a copy "of my opinion prepared by any official in or under the Department of State" relating to the 5 per cent. discount. The other directs the Secretary of State to transmit a list of nations with which the United States has treaties or agreements outstanding relating to trade.

Upon the enactment of the present Tariff Bill, serious controversy arose over the question of whether or not the 5 per cent. discount in favor of American ships violated the existing commerical treaties with certain foreign countries. Representative Underwood, who framed the tariff bill, declared he had looked into the subject and had been advised that the treaties were not affected. At the time it was assumed that his advice came from the States Department.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine.)

The addition, which was started about a month ago at the paper mill of the John Hoberg, Company at Green Bay, Wis., is nearing completion. It will be ready for the company's use in a short time. The addition is 50 x 70 feet in size, and is built as a second story to the old part of the paper mill. It is constructed of iron and concrete. A new finishing room will be secured by the Hoberg Company when this part is finished, and new machinery installed. The company will be in a position to turn out its products in better shape than at present, but the output will not be increased.

* * * *

The Sterling Paper Company at Hamilton, Ohio, is making preparations for extensions of considerable importance. It was hoped before this to have a new machine in operation, but the flood and other incidents delayed work until now it is feared the new machine will not be installed, order has been given for a 102 inch Fourdrinier.

* * * *

The Keyes Products Company, of Montville, Conn., which has been closed since the fire that burned the plant early in the summer, has been rebuilt. Although all the machinery has not yet been installed, the equipment at present is sufficient to enable the mill to make a start in production.

* * * *

Creditors of the Aster Paper Company, of Hartford, Conn., have filed a petition in bankruptcy against the company at Utica. The petition alleges that the company's liabilities exceed $35,000. The creditors are bringing suits to recover amounts due, following the fire which destroyed the company's plant on November 7. It is also alleged that the company has preferred certain creditors in the last four months. No receiver was appointed.

* * * *

The river Raisin Paper Company at Monroe, Mich., one of the largest industries of its kind in the United States, has issued notice that it intends to double its present capacity by a mammoth addition to its plant. Another similar concern, the Monroe Binder Board Company, is now erecting a $100,000 addition, which will double the capacity of its plant.

* * * *

American Writing Paper 5% bonds due 1919 made a new low record last week, on the New York Stock Exchange, when they sold at 74. While the transactions amounted to only 35 bonds the net loss for the week amounted to over five points. The high point at which these bonds have sold since January 1, was $90\frac{3}{8}$. Decline, according to a director of the company, is due to the present poor business, and prospect of earnings for 1913 being unsatisfactory. Advance in the prices of materials and the fact that the company had to shut down during the summer because of a shortage of water, decreased earnings. The low price of the bonds should not protend default. The company mot only has plenty of cash on hand, but in addition $1,400,000 invested in it's own bonds outside of the sinking fund.

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Judge Dodge of the U. S. District Court on the petition of the Mutual National Bank of Boston, Mass., has appointed Francis H. Dowey, president of the Mechanics National Bank of Worcester, Mass., receiver for the Farley Paper Co. of Wendell Mass., under a bond of $10,000. The court stated that in appointing Mr. Dowey receiver he was made custodian of the property, and was to make an investigation and report to the court at an early date the advisability of operating the plant. The company is a creditor to the bank on the sum of $10,000. The liabilities amount to $95,000 and the assets $207,000, besides valuable water rights. The petitioner alleges that the stock of the company is almost equally divided between two factions, and that there is a disagreement between them as to how the plant shall be run. This has greatly interfered with the business.

* * * *

The International Paper Company, the largest taxpayer in Bellows Falls, Vt., has not paid its taxes in that village. For years the question of just what constitutes the boundry line between the state of New Hampshire and Vermont has been in dispute and the action of the paper company is based on this question. New Hampshire claims that its line extends to the break in the bank of the river, thus placing the Connecticut river and its west bank in New Hampshire. The town of Walpole, opposite Bellows Falls, claims that the paper company plant buildings are on made land and are in New Hampshire. The Vermont legislature has appointed a commission to work on the matter and carry the boundary question to the United States Supreme Court if necessary.

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Justice Emerson at Watertown, New York, has granted an order staying proceedings pending the appeal in the action brought by E. F. Birmingham against the Dexter Sulphite Pulp and Paper Company, for the purpose of securing an examination of the compamy's books. Mr. Birmingham being a stockholder of the company but who has not been acquainted with the business which the company has been doing at Dexter since he was ousted some years ago. The order provides that the assistant secretary of the company, Herbert A. Long, shall furnish Mr. Birmingham or his attorney a list of the books belonging to the company, and also placing these books in a fire proof vault until they are examined in case the decision of Justice Emerson directing an examination stands.

* * * *

The last cargo of pulpwood to be brought to Port land, Me. this season on board the steamer Thelma from Bridgewater, N. S., arrived there on Nov. 16. Tne cargo was consigned to the International Paper. The steamer Appenine completed discharging her cargo and sailed from Portland for Newport News on Nov. 15. The Appenine will load coal at Newport News and will later proceed to Buenos Ayres, South America.

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A plant for the manufacture of paper pulp is to be installed at the University of Maine by the department of chemistry, in connection with the two new courses in paper and pulp which have been added to the curriculum. The plant will necessarily be on a miniature scale, but will include all the stages in the manufacture of pulp. This will probably be the only plant of its kind in use in any American college, as the University of Maine is a pioneer in this sort of technical education as far as the United States is concerned.

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Supt. Palmer of the Orono Pulp & Paper Co. at Orono, Me., has inaugurated a new scheme for piling of the logs to be used during the winter in the pulp mill, which will reduce the cost of handling these sticks to a minimum. This piling is a problem, wince to take the logs out and pile them up is a big expense, which adds materially to the final cost of the product of the mills, Supt Palmer believes that he has solved, in part at least, this problem. He has built a trestle carrier, which leads by an inclined plane from the water. The logs are brought to this carrier sawed to the desired lengths and then the automatic conveyor takes them along till they come to a point desired and there are left and conveyor dropping its grip upon the log to bring more, while the logs released are dropped from the height of the trestle to the ground below, or to the top of the pile of logs lying beneath. From this point they may be drawn upon at any time, for use in the wood room of the mill.

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"Papermakers Night" was observed at the Y.M.C.A. at Lawrence, Mass., on Saturday night, Nov. 15 the employees of the Champion-International Paper Co. and Merrimac Paper Com. Mahlon D. Currier of the Champion-International mill welcomed the men. Fred Clee assistant secretary outlined the evening program, and Fred Temple of the Merrimac mill responded to the greeting in well chosen remarks. For the association a welcome to the men was tendered by James A. Macdonald, chairman of the membership committee who explained the objects and advantages of Y.M.C.A. membership. General Secretary E. G. Gay, also heartily welcomed the guests and made them make themselves thoroughly at home during the evening.

MR. PELLITER WARNS BRITISH PAPER MAKERS

(Special to Pulp and Paper Magazine.)

New York, N.Y., November 26th. 1913.

A special cable from London, England, was received by the press here this morning to the effect that Mr. Pelletier, Agent-General of Quebec, at the annual meeting of the British Wood Pulp Association yesterday, warned British paper makers that American capitalists are trying to locate the best timber limits and the greatest water power resources in the Dominion of Canada. It will not be so very long," he is quoted as saying, "before American interests will be in possession of a very large share of the Dominion's pulp timber."

Ottawa Notes

(Special to Pulp and Paper Magazine.)

Ottawa, Nov. 25th.

Mr. G. H. Millen and Mr. W. H. Rowley of the E. B. Eddy Company were in New York last week on business. Mr. H. R. Erskine of the J. R. Booth Company was also in the big city on a similar errand, indicating, possibly, the growing importance American markets are assuming in the eyes of Canadian pulp and paper men.

Mr. J. R. Booth has now sufficiently recovered from his recent accident at his plant, when he was struck by a falling timber, to be out but he has not yet attempted to get back to work. Friends of Mr. Booth, however, say that he promises to completely recover his former health.

There have been practically no changes in the price of pulp and paper here of late. News print still sells firmly at from about $41 to $43, delivered while at the mill news print sheet goes at $46 to $50. For easy bleaching sulphite $43 to $45 is being asked when delivered in Canada while for the bleached product $55 to $60 is the range. Ground wood at the mill commands from $15 to $17.

The huge consumption of spruce for pulp forms the basis of a bulletin issued by the Commission of Conservation this week. It refers to the fact that the limit of production has been reached in the United States and that the tremendous increase in Canada points to a similar condition of affairs here. It says under this head: "At present pulpwood is made almost entirely from spruce and principally by the mechanical process. In Canada in 1912, the aggregate of wood used was 866,042 cords and of this 677,747 cords were spruce. The aggregate of pulp manufactured was 682,632 tons of which amount 499,226 tons were made mechanically These figures represent an increase of about 44 per cent. over 1910. Canada has by no means yet reached the limit of her production, but it can only be a question of time till the operation of the same forces brings about the same situation as in the United States. In the circumstances, the question of finding substitutes for spruce becomes of peculiar interest and it is interesting to learn that experiments are now being carried on with a view to testing the efficacy of such woods as hemlock and jack-pine as substitutes for spruce in the manufacture of paper-pulp.

Of interest to owners of pulp and paper factories was a verdict returned by a coroner's jury which inquired into the death of a boy in the mills of the W. C. Edwards Lumber Company here. The jury attached a rider to its verdict to the effect that no child under fourteen years of age should be allowed to work in a sawmill, pulp or paper or any other kind of factory. Their inquest was on the body of Eugene Belanger, eleven years old.

Mr. F. H. Fielding formerly Superintendent of the Canada Paper Mills, Windsor Mills, Que., and of the Spanish River Pulp and Paper Mills, Espanola, Ontario, has been appointed Assistant Superintendent of the Southern Paper Company's "Kreaole Mills," Moss Point, Miss.

J. H. Hyer of Carthage, New York, has left that place to be superintendent of a new Board Mill to be built near Montreal.

BRITISH TRADE NEWS

SPECIAL TO PULP & PAPER MAGAZINE

London, Nov. 22, 1913.

During the past six months the additions and improvements effected at British paper mills, with a view to limiting the cost of production, have been very considerable and a notable feature is the introduction of electricity for lighting and power purposes. The owners of the Spring Vale Paper Mill at Darwen, in Lancashire, have just completed arrangement with the Darwen Electricity Committee for the supply of electric lighting and electricity to drive all machinery. The Ford Paper Mills Company, of Hylton, near Sunderland, have completed an electrification scheme, and a new chemical plant, including electric runways and other machinery has been put down at the No. 8 mill of the Hendon Paper Works Company in Sunderland. Considerable additions have been made at the Marsolin Paper Works, near South Shields, of the North-Eastern Paper Mills Company, and a new paper-making machine, electric crane, hoists and other auxiliary machinery have been introduced. The Team Valley Paper Mills, Ltd., of Gateshead-on-Tyne, have installed a paper-making machine and auxiliary plant, while at their Springwell Paper Mills various extensions have been carried out. At the West Hartlepool works of the Hartlepool Pulp and Paper Company the extensions in hand comprise a new chemical plant and pulp stores. The Laitzford Paper Mill Company, Ltd., at Rowlands, Gill, Newcastle-upon-Tyne, have reopened plant which was closed down about six years ago. Included among the additional machinery are a new boiler and economisers, superheaters and a new Unaflow steam engine, a water turbine, bleaching plant, a new wet end to the paper-making machine and other additions, a duplex-cutting machine by the well-known firm of Messrs. Charles Walmsley & Co., of Bury, and two 57 kw British Westinghouse generators. A first-class reeling machine has been installed also. The Luitzford mill, like other up-to-date mills, is now electrically equipped for both power and lighting and the paper-making machine is capable of producing 30 tons of paper per week and has 60 inch web. These improvements may be taken as an indication of the prosperity and progress of the British paper industry, and in another few years a mill without electric power will be looked upon as of the "ancient mariner" type.

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There was a very happy gathering the other day of the wood pulp men in Manchester, who assembled in all their glory to say adieu to Mr. James Grant, one of their confreres who, as already announced in the Pulp and Paper Magazine, is leaving to take up the management of the North of Ireland paper mill. Mr. Grant was presented by the pulp men with six silver liqueur loving cups and a Doulton coffee set enclosed in a nice morocco leather case on which appeared the following inscription: "Presented to James Grant, Esq., from the Manchester representatives of the wood-pulp trade, October 1913." The North of Ireland Paper Mill Company is a progressive and successful concern, and the selection of Mr. Grant to take full charge once more is a step in the right direction.

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Mr. J. Hubner, a member of the staff of the Manchester School of Technology, has recently been lecturing on "A contribution to the history of dyeing." It had been established, he said, that the Egyptians practised dyeing as early as 3,000 B.C. and that the application of alum and of iron mordants was well understood in Pliny's time. In Europe the first houses notable for dyeing were in Italy in the eighth century. During the 10th century Mr. Hubner said a guild of dyers was formed in Germany and we are told that dyeing flourished during the 12th century in and near Jerusalem and that it was entirely in the hands of the Jews. The lecturer also gave some interesting information on early dyeing in the English indutries and he urged every student of technology to become acquainted with the history of this particular branch of study, a subject which was almost entirely negelected in educational institutuions today. Mr. Hubner it should be mentioned is one of the examiners in papermaking at the Manchester School of Technology.

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Judging by all that has been written lately in the English newspapers, it is evident that Egypt has an asset of great potential value in its fibres, and as time goes on and population increases considerable developments may be looked for. The giant sedge of the Soudan, or papyrus, Cyperus papyrus, which is one of the chief constituents of the vast region known as the "sudd," which covers an area of many thousands of square miles between the 6th and 10th parallells of latitude N. is at present engaging the attention of experts and pulp from this material is expected at any moment to appear in London. The only difficulties in the way in carrying on successfully a local paper mill is the isolated position of the raw material, but as soon as these are overcome it is said that the way will be opened for the creation of a large paper pulp industry. In India, too, investigations are going ahead, so much so that the Indian Government have now appointed Mr. Wm. Raitt, F.C.S.A., permanent Cellulose Expert as a result of his recent investigations in the Forestry department. This is a new office and the Indian paper mills should benefit by it. Mr. Raitt is engaged with bamboo research work and the value of Indian grasses for paper pulp.

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In the arbitration between Messrs. Henderson, Craig & Co., London, wood pulp agents, and Messrs Peter Dixon & Son, Ltd., papermakers, Grimsby, particulars of which appeared in the last issue of the Pulp and Paper Magazine in these columns, the Umpire has made his award. He finds that the shipment of pulp was not reasonably equal in quality to any one of the three standards specified in the contract and that the divergence in quality was not sufficient to entitle the buyers to reject the shipment, but that they are entitled to an allowance of 96 cents per ton in respect of the difference in quality. He accordingly directs that the buyers take in the shipment and that the sellers allow the buyers $1,089.60 odd, with dues, demurrage and warehouse charges incurred to May 26 last to be borne by both parties. All such charges since May 26 are to be borne by the sellers. As to the costs he directs that each party bear and pay their own costs of and incidental to the hearing before the arbitrators, but the costs of the special case before the judges are to be paid by the sellers, including, of course, those of the Umpire.

The Kellner-Partington Paper Pulp Company have recommended a final dividend of 10 per cent. on ordinary shares, making 20 per cent. for the year ended September 30. Similar distributions have been made for many years. The Star Paper Mill Co., reports 72 cents per share are to be paid on the preference share for the last half year and $1.20 per share on the ordinary $24 shares. The same dividend was paid on the ordinary on each occasion with the addition of 30 cents per share bonus at October 1912. The dividends for the complete year ended October amounts to 11½ against 12½ per cent. the preceding year and 10 for the year ended October 1911.

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As to wood pulp and other papermaking materials the totals are as follows:—Imports, £500,457 in October, compared with £524,919 in October, 1912; and, £4,659,652 for the first ten months as against £4,340,405 for the same period last year. These figures include Esparto, rags and pulps. The details include the following imports in October:—

	1912 Tons	1913 Tons
Dry Chemical, bleached.	2,457	1,464
" " unbleached.	33,241	33,344
Chemical dry...........	35,698	34,808
" wet...........	1,393	1,867
Mechanical dry.........	3,159	1,368
" wet...........	51,748	56,762

For the ten months of this year the figures are: Chemical dry bleached, 16,898 tons (corresponding period in 1912, 15,865 tons); chemical dry, unbleached, 287,220 tons (292,470 tons); chemical dry, 304,118 tons, (308,344 tons); chemical wet, 12,817 tons (11,697 tons), mechanical dry, 7,276 tons (11,410 tons); mechanical wet, 465,707 tons (387,-758 tons). Canada shipped to England 5,151 tons of mechanical wet in October, as against 6,178 tons in Oct. 1912. It is very interesting and gratifying to record that during November Canada is appearing in the list of suppliers of dry chemical bleached to England. Sweden has a large monopoly in this trade with the United Kingdom. If Canadians could maintain a large export trade in this class of pulp the British market would reap incalculable benefit. No returns are furnished regarding Newfoundland in October, but particulars are available at the office of the Canadian Pulp and Paper Association.

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The Trade Board returns for October show the state of the paper industry as regards exports and the imports into the United Kingdom, compared with the corresponding month in 1912 are:

	1912	1913
Imports..............	£665,861	£721,121
Exports..............	336,276	300,802
Re-Exports...........	19,756	24,260

These totals include paper of all kinds, strawboards, mill and wood pulp boards, playing cards, etc. The figures for the ten months—January to October—compared with the corresponding period in 1912 are:

	1912	1913
Imports............	£5,957,194	£6,411,728
Exports............	2,929,512	3,099,250
Re-exports..........	147,894	248,359

From these returns it will be seen that the imports of paper and boards, etc., show a slight increase in October, while the export trade of the British mills fell away to the extent of £73,526. Newfoundland paper was imported into England to the value of £57,119 compared with £60,690 in October 1912. The exports of British paper to Canada in October were:—Writing paper, 665 cwts (last year 473 cwts); printing papers, 9,607 cwts (last year 12,604 cwt); other kinds of paper, 503 cwts (last year 644 cwts). Canadian imports of paper from this country show a decline in October, but taking the totals for the ten months of this year, there is still a considerable increase over the corresponding period of last year, particularly in printing and writing papers.

WESTERN FORESTRY AND CONSERVATION ASSOCIATION.

(Special to Pulp and Paper Magazine.)

Ottawa, Nov. 25th.

According to a statement issued by Mr. Clyde Leavitt, chief forester of the Conservation Commission, this year for the first time the annual meeting of the Western Forestry and Conservation Association, will be held in Canada. The meeting, the most important yearly gathering of timber owners in the United States or Canada, will be held at Vancouver, December 15 and 16. At the meeting in Seattle last year one-third of the standing timber of the United States was represented and there were present over thirty men prominent in Western Canada forest affairs. The Association is made up of the various forest fire organizations on the Pacific Coast of the United States and represents the combined efforts of private owners of timber lands, various Western States and the Federal Government, in the prevention and control of forest fires.

One of the most interesting features at Vancouver will be a debate between British Columbia lumbermen and the Government over the merits and demerits of that province's forest policy and methods. Other topics will be: experiments in state co-operation and compulsory patrol; logging camp rules and precautions; slash and right-of-way burning; forecasting hot. dry winds; supply, report and payroll systems; forest telephone building; wireless auxiliaries and railroad regulation and co-operation. An unusual attraction will be an exhibit of all devices and instruments used in American forest protection.

A report received from Binghampton, N.Y., said that a power plant would be erected costing millions of dollars, on the Canadian side of Niagara Falls. Surveyors have already been at work according to reports. This new commission are expected to break ground in a short time. The plant will cover an acre of ground.

PULP AND PAPER NEWS

George H. Mead, Vice-President of the Spanish River Pulp and Paper Co., who is also President of the Mead Paper Co., Dayton, Ohio, spent a few days in Toronto last week on business. W. E. Stavert, of Montreal, President of the Spanish River Co., has also established an office in Toronto.

The overhauled sulphite plant of the Toronto Paper Manufacturing Co., Cornwall, is now in full operation and the company are bleaching their own sulphite. The new loft, which was installed for turning out high grade, loft dried writing and other stock, will be used this week and it is expected there will be a good demand for the high class product of the company.

The Colonial Wood Products Co., whose plant at Thorold, Ont., has been closed down for some time, will, it is understood, be re-organized and steps are now being taken to resume operations at an early date.

W. H. Rowley, and George H. Millen, of the E. B. Eddy Co., Hull, Quebec, were in London, Hamilton and Toronto last week on a tour of inspection of the branches of the company.

W. S. Boyd, sales manager of Price Bros. and Co., Kenogami, Que., was in Toronto last week on business and reports that the company have recently closed a number of favorable contracts for news-. print.

The C. N. R. has secured an injunction on the Ontario and Minnesota Power Company, the owners of the Fort Frances Paper Mills, Ontario at Fort Frances, Ont. It seems that the Paper Company were removing the tracks of the C. N. R. without having secured their permission or the approval of the railway board. The town of Fort Frances had given their permission for the tracks which go through the streets to be changed to allow the Paper Company to place their siding. The matter will soon be disposed of.

The Canada Paper Co., at Windsor Mills, Que., have shut down to work short time and are now closing on Saturday at 1 p.m. instead of Sunday mornings as usual. It is understood that this is on account of the general slackness of trade.

Last week, the party of men interested in the building of St. Lawrence Pulp & Paper Corporation Lumber and Sulphite Mills at Bonaventure, Que., visited the proposed plants. The sawmill is well under way and will be completed in June next, cutting about 40,000,000 to 50000,000 feet of lumber. The sulphite mill will have a capacity of 125 tons and will be completed in September next. The Company is building sixteen miles of railroads to bring out their wood to their own mills. The rails are already laid over ten miles and they expect to spend on the complete plant $2,000,000. The American capitalists who are interested in the concern, passed through Quebec on their way home. having spent the week looking over the Gaspe plant. Their two private cars "Advance." and "Superb" left New York on Saturday last and arrived in Pabos on Monday morning.

The party, which was accompanied by Mr. John Kelly, M.P.P., for Bonaventure, the Canadian representative of the Company was composed of Mr. Robert, Whitmer, President of the Company, Mr. P. M. Chandler, of Chandler Bros. & Co., N. F. Fuqua, of Fuqua & Co., Mr. George W. Robertson, of Shamokin, Hector McNeal, George de B. Keim, Lawrence MacIntyre, John Richards, A. B. Lockhart, B. F. Taylor, A. E. Pendergast, John Motter, Charles Cooke, G. Hodges, J. Hale, R. F. Wilbor, and also of different members of the New York Stock Exchange, the Philadelphia Stock Exchange, the Chicago Stock Exchange, the New York Cotton Exchange, and the Chicago Board of Trade.

Before investing their money in the Province these parties made a thorough study of the laws of the Province as regards the security that our timber limits offer to the investor, and came to the conclusion that the stability of our laws and regulations offer every safeguard to the prospective bondsman. These gentlemen have other investments in view in this Province and it is probable that before long other plants will be acquired with the view of erecting other pulp and paper mills.

The National Paper Co., who have their coating mills at Valleyfield, Que., just announced the opening of a Sales Office and Warehouse in Toronto, 156-160 John Street, with Mr. N. E. Wainwright as manager. It is understood that their business in Toronto has enlarged greatly and they propose to carry in stock a complete line of regular sizes and weights of coated book and litho.

During the progress of blasting operations at Mill Cove, for the extension of the Dominion Pulp mill, the petrified form of a saurian, two or three feet long, was uncovered. A blundering workman undertook to detach it from the rock and broke it into pieces. The reptile lived and flourished long before the Adam and Eve era, and it would have been a valuable specimen of pre-historic times.

This year, for the first time, the annual meeting of the Western Forestry and Conservation Association will be held in Canada. This Association is made up of the various forest fire organizations on the Pacific Coast of the United States, and represents the combined efforts of private owners of timber lands, various Western States, and the Federal Government, in the prevention and control of forest fires.

In a popular contest conducted by the Toronto Star Weekly in regard to the ten citizens who would be most missed in the different fields of activity, W. J. Gage, who is at the head of W. J. Gage, & Co., and the Kinleith Paper Mills was the winner under the heading of those interested in charities, hospitals and public institutions, the work of Mr. Gage in his war against tuberculosis being particularly referred to.

Great damage was done by the recent storm, which swept the great lakes, to the standing timber in Northern Ontario, Full reports of the loss are not yet to hand. It is estimated that the fallen timber in the Muskoka and Parry Sound districts is from forty to fifty per cent. and that in the Mississauga Forest Reserve the damage has been very heavy. While the immediate loss through the destruction of timber is great, the danger from fire during next season is increased unless steps are taken to remove the trees and clear the roads. It is likely that, as soon as the government surveyors and rangers present their report, the Ontario Department of Lands, Forests and Mines, will call for tenders for the removal of the damaged trees. It will be remembered that, in the case of burned timber after the forest fires, last summer, contracts were awarded for the clearance of dead and burned material.

At a special meeting of the Canadian Press Association held in Toronto last week, it was decided to invite the Imperial Press Conference to convene in Canada during 1914 and a committee has been appointed to make all preliminary arrangements. The Conference is composed of all the leading publishers and journalists of the British Empire and the colonies, and meets only once every five years. It is probable that the federal government will be asked to make a grant toward the entertainment of the visitors and that the railways will provide accommodation for the large and influential party to take trips to various parts of the Dominion. The Canadian Press Association has decided to make application to the Dominion parliament for an act of incorporation and the new constitution was adopted. Incorporation, which will nationalize the Canadian Press Association, will not become effective until after the next annual meeting in June, which will probably will be held in Montreal. The new constitution provides for territorial organizations. The report on the proposed increase in second class postal rates was presented and adopted with slight amendments. H. B. Donley, president of the Canadian Press Association and J. F. MacKay, president of the Canadian Press, Limited, were appointed to take up the matter with the Postmaster General at an early date.

George Coates, who resides at 33 Myrtle Ave., Toronto, met with a terrible accident in the Lybster mill of the Lincoln Paper Mills at Merritton, Ont., last week. There was a break in the paper on the big 120 inch machine and, while endeavoring to clear the refuse, by some means Coates caught his right arm in the heavy calenders and, in seeking to extricate himself, the other arm was partially drawn in. The result was that he lost the right member at the shoulder and the left one below the elbow. He was removed to the hospital in St. Catharines and at first his life was despaired of, but he is now getting on as well as can be expected. He has a wife and three small children who are in poor circumstances. Coates had been employed at the mill only a few weeks, The sum of twelve hundred dollars has been raised by residents of St. Catharines and Merritton to assist the family.

John Heard & Co., Limited, of St. Thomas, Ont., have been granted a charter, with a share capital of $75,000 to manufacture and deal in all kinds of wood and timber and the products thereof and to buy, hold and sell timber lands, licenses, limits, etc.

A. Paquette, of Ottawa, has been appointed manager of the Toronto branch of the Continental Bag and Paper Co., succeeding E. A. Crippen who has been in charge since the warehouse was opened some months ago. Mr. Crippen has returned to the Syracuse, N.Y. Mill. W. W. Ormsbee, general manager of the Continental Co. was in Toronto last week installing Mr. Paquette in his new position.

E. P. Lindsay of Boston, sales manager of the Brompton Pulp and Paper Co., East Angus, Quebec, was in Toronto last week. The Brompton Co. are now turning out some fine wood board, pulp board and box board and are finding a ready market for their product.

The new warehouse of the Victoria Paper and Twine Co., which is being erected at 439 Welington street west, Toronto, will be roofed in a couple of weeks. The structure is four storeys high, 50 x 210 feet, and will be ready for occupation by the middle of March, two or three other wholesale paper firms in Toronto are contemplating erecting new warehouses during the coming year.

Hon. John Sharples, the widely known lumberman of Quebec, who died a few weeks ago, left an estate of $1,5000,000 and the succession dues, which will revert to the province are $37,000. The sum of $120,000 was contributed to religious and charitable institutions in Quebec city.

The prospects are that the timber cut in Ontario during the coming winter will be small as building operations have not been as brisk the past year as in the previous one and the available supply in the hands of dealers seems adequate to meet all the requirements for some time.

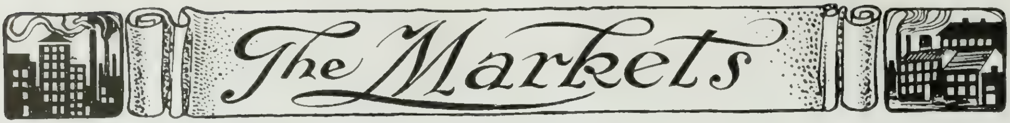
There were a great many pulp, paper and lumber companies incorporated in Canada during the year 1912, some of them with very large capital, but this year a different tale is revealed by the revenue of the State department. The first seven months of the fiscal year shows a decrease in revenue of nearly eighteen thousand dollars. The revenue is based upon capital.

It is confidently expected that the new news print mill of the Ontario and Minnesota Power Co. at Fort Frances, will start operations early in January and the output from the two, 186 machines will be about one hundred and forty tons per day. The Company has fifteen grinders in the ground wood mill and twelve wet machines.

It is said that some of the lumbering camps of of Ontario and Quebec are not up to the standard required and that an investigation will be made by the Labor Department of Ottawa. Officers have already started on a tour of inspection and have been enjoined to see that the consditions, sanitary and otherwise, are such that the health and comfort of the men will be assured. If the provisions are not lived up to heavy fines will be imposed.

Mr. E. H. Mayo formerly with the Munising Paper Company, and latterly of the Yellow Pine Paper Company, has been appointed Superintendent of the Southern Paper Company's "Kroole Mills," Moss Point, Miss.

The ground wood refiner installed at Foley-Riger Co., Thorold, Ont., by the Boving Co., of Canada, Limited, has effected a saving of from 2408 lbs. of ground wood per cord of wood to 2855 lbs. per cord of rossed wood.



Canadian Markets

The market conditions remain practically unchanged so far as news print is concerned. All the mills appear to be busy and announcement is made by some of them that they have recently entered into contracts of a favorable character covering the major portion of their output for the coming year. Book and writing plants are not rushed and orders for the most part are small, The outlook, however, appears to be improving and there has been no price cutting to secure business so far as can be learned. Coating paper mills are rather slack but on regular standard lines prices are well maintained. There has been imported into the Dominion large quantities of English art paper and, in order to offset this competition, Canadian plants have been producing a Canadian art paper of a light, semicoated character. They have been manufacturing it at a price to meet the imported products of this character. In the wrapping line wholesalers report that trade has picked up considerably owing to the anticipated holiday rush. In order to keep their machines going and to stimulate business some mills have been making reductions to jobbers and quotations are about five per cent. less than a couple of months ago. There is a pretty good demand for kraft but prices are being sacrificed in certain instances. Glazed kraft is having a steadily increasing sale. The market for ground wood is only fair as, with recent rains across the line, water conditions have improved, and prices are only moderately firm. The sulphite situation is somewhat easier and prices stay around the figures that have been quoted for some time. In the rag and paper stock line, soft white and mixed shavings are weaker and book stock is rather slow. Mixed papers are in moderate demand while in roofing stock the number of requisitions is fair but small dealers are holding out for higher prices.

Quotations, f.o.b. Toronto, are:

Paper

News (rolls) $42 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill
Book papers (carload) No. 3. $3.75 to $4.50
Book paper (ton lots) No. 3, 4c. to 4.50
Book paper (carload) No. 2, 4.25c.
Book paper (tons lots) No. 2, 4.50c. to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75
Manila B., $2.50 to $3.25
Manila No. 2, $2.75 to $3.50
Manila No. 1, $3.25 to $4.00
Unglazed Kraft, 3.75 to 4.50
Glazed Kraft, $4.25 to $5.00

Pulp

Ground wood (at mill), $15 to $16
Ground wood, $22 to $24.50, delivered in United States
Sulphite (unbleached), $43 to $45, delivered in Canada
Sulphite (unbleached), $43 to $46, delivered in United States
Sulphite (bleached), $58 to $60, delivered in Canada
Sulphite (bleached), $58 to $62, delivered in United States

Paper Stock

No 1 hard shavings, $1.90
No. 1 soft white shavings, $1.72½ to $1.75
No. 1 Mixed shavings, 55c.
White blanks, 85c. to 87½c.
Ordinary ledger stock, $1.20
Heavy ledger stock, $1.40 to $1.50
No. 1 book stock, 75c. to 77c½.
No 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.15
No. 1 print manillas, 65c. to 67½c.
Folded news, 55c.
Over issues, 57½c.
No. 1 clean mixed paper, 40c.
Old white cotton, $2.50 to $2.75
Thirds and blues, $1.30 to $1.32½
No. 1 white shirt cuttings, $5.25 to 5.50
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.75
Black linings, $1.75
New light flannelettes, $4.60 to $4.75
Ordinary satinets, 75c.
Flock, 90c.
Tailor rags, 65c. to 67½c.

Quotations, f.o.b. Montreal, are:

Paper

News, $41 to $43, delivered
News, $41 to $43 for large orders, $44 to $45 for small orders
Newsprint, sheet, $45 to $50 at mill
Book. carload lots, No. 1, 5¼c. to 6¼c.
Book, broken lots, No. 1, 6¼c. to 6¾c.
Book, carload lots, No. 2, 4¾c.
Book, broken lots, No 2, 5c. to 5½c.
Book, carload lots, No. 3, 4⅛c. to 4½c.
Book, broken lots, No. 3, 4¼c. to 4¾c.
Manila B., 3¼c. to 3½c.
Fibre, 4c. to 4¼c.
No. 1 manila, 3½c. to 4½c.
No. 2 manila, 3¾c. to 4c.
Kraft, 4c. to 4¾c.

Pulp

Sulphite easy bleaching, $43 to $45 per ton
News quality, $41 to $42 per ton
Bleached sulphite, $54 to $59 per ton
Kraft pulp, $3.60 to $4.00
Ground wood, No. 1, $15 to $16.00
Ground wood, No. 2, $22 to $24, delivered United States

New York Markets

New York, N.Y., Novenber 25th, 1913.

Owing to the copious rains during the past month ground wood pulp mills throughout the eastern district have been enabled to operate their machines on a practically full basis. In consequence there is a goodly supply of that article on hand at the various manufacturing points, and the demand for additional supplies has greatly fallen off particularly during the past few days. Concerns that manufacture ground wood pulp for the paper mills only have quite a heavy surplus stock on hand and in their endeavor to move same have made concessions in prices. According to reports of the leading local distributors, business is by no means brisk, and competitive methods are beginning to be noticed. It is the common belief, however, that as soon as real winter sets in the demand will be greatly augmented. Contract deliveries are passing steadily at present, but the market is featureless.

Chemical pulps continue to lag. Buying is of hand-to-mouth order, and competition is extremely keen among the local importers and the principal domestic producers. Prices, though ruling about the same as last reported, are inclined to be very weak. This applies to almost every description. One of the leading importers stated, however, this week that he was of the firm opinion that these conditions would not be of long duration. "Consuming mills have been holding off so long in their contract making," he said, "that they will soon be forced to anticipate their requirements; and when si they will have to buy at prices considerably higher than those prevailing at the present moment." This apparently is the keynote of the local situation as all interested parties cannot see anything but an advance when business at the mills shows anything like an improvement.

Paper stocks of all descriptions, both rags and waste papers, are not moving in the volume anticipated for this period of the year. Mills are only buying from hand to mouth and are taking on such supplies as are actually needed to tide them over the present slump in business. In rag stocks practically the only grade moving is in roofings. While trading is not brisk, it is of sufficient proportions to keep prices up and reflect a stronger tendency. Heavy accumulations are reported in nearly all quarters in waste papers, and values in many lines are decidedly weak. While this applies more chiefly to commons and mixed the situation in the better grades is but little better off.

Pulp.

Ground Wood, No. 1, $18 to $20 per ton, f.o.b. mill

Ground Wood, No. 2, $15 to $17 per ton, f.o.b. mill

Unbleached sulphite, domestic, 2c. to 2¼c. per pound, delivered.

Unbleached sulphite, imported, 1¾c. to 2c. ex dock, New York.

Bleached sulphite, domestic, 2.90c. to 3c. per lb. delivered.

Bleached sulphite, imported, 2.70c. to 2.95c. per lb. ex dock, New York.

Easy bleaching sulphite, imported, 2.10c. to 2.20c. per lb. ex dock, New York.

Unbleached sulphate, imported, 1.80c. to 2.10c. per lb. ex dock, New York.

Bleached sulphate, imported, 2.60c. to 2.80c. per lb., ex dock, New York.

Kraft pulp, imported, 1.85c. to 1.95. per lb., ex dock, New York.

Soda pulp, domestic, 2.15c. to 2¼c. per lb., delivered.

(All quotation of foreign products are made on a basis of ex duty.)

Paper.

With barely one or two exceptions, the local paper market reflects pretty much the same situation as it does in the other principal centres in the United States, viz., very quiet and uninteresting. Millmen calling on the local trade report that their respective concerns are by no means filled with orders—and in some cases production has had to be greatly curtailed. The buying movement throughout the country is very light contrary to the belief that as soon as the tariff bill was passed it would improve. For a short time a slightly better feeling was noticed, but it was not of long duration and the situation today is as bad, if not worse than it has been at any time this year. Water conditions at the mills are very good at present and almost every manufacturer is in a position to run his machines on full time. Many of them are doing it and accumulating stocks for the future Others, however, are less fortunate with capital and are forced to operate according to the current business. As far as prices are concerned, they are holding up remarkably well, considering the great slump in business. The exceptions to the rule previously alluded to, are in Newsprint and Tissues. The disturbing factors in the former that have been playing havoc in the market for the past several months have apparently sold out their output and withdrawn. This, together with the fear with war with Mexico, and a slightly increased demand during the past fortnight, has greatly strengthened the newsprint situation. Demand at present is very brisk, both in transient and contract business and competition is less pronounced. Many of the mills are looking for trouble south of the Rio Grande and are inclined to hold their products in the hopes of obtaining premium prices should war break out. As far as tissues are concerned, the fast approaching holidays is keeping this market on a more steady basis. The majority of mills are filled with orders for deliveries over the next two weeks, and in consequence are running their machines on very good basis. Aside from newsprint, prices remain unaltered, though it must be admitted that they are very weak in some cases. The rebounding of the newsprint market has reflected a five point advance which is the only change recorded in the following quotations over the interval:

News, rolls, transient business, $1.95 to $2.00 f.o.b. mill.

News, rolls, contract renewals, $1.95 to $2.00 f.o.b. mill.

News, sheet, $2.10 to $2.15 f.o.b. mill.

Book papers, car lots, C. & S. S., $4 to $4.20 f.o.b. mill.

Book papers, car lots, M.F.S., $3.75 to $3.90 f.o.b. mill.

Writing paper, superfine, 11c. to 13c. del. east of Miss. Riv.

Writing paper, extra fine, 10½c., del. east of Miss. River.

Writing paper, No. 1, fine, 9c., del. east of Miss. River.

Writing paper, No. 2, fine, 8c. del. east of Miss Riv.

Writing paper, engine sized, 4½c. to 8c. del. east of Miss. River.

The British Markets

(Special to Pulp and Paper Magazine.)

London, Nov., 21, 1913.

There is a slight revival in business in the British paper industry, but it must be said that things are not what one could call very prosperous. Some mills are very slack with orders, while others have barely enough to keep them going. The newsprint mills are the only ones that show any sign of being busy and from a converation with a big "news" producer he has told me that he cannot complain and that he is getting enough to keep the machinery well occupied. The export trade in October showed a considerable falling off, but there is every likelihood of it picking up in November. High-class printings and kraft are in good demand for the moment. Agents, also, are complaining of the dullness of trade. At the meeting of the Paper-Makers Association grave complaints were made against the increased cost in the production of paper now. A Lancashire man said the prices were now below the cost of production and unless something was done to get them above the cost of their product it was going to be very bad for some mills. The time certainly will come when paper will have to be advanced in England in prices else there will be trouble. Mr. Joseph Dixon, of Peter Dixon & Son, Ltd., suggests a tariff clause in all contracts to remedy the grievance.

* * * *

Mechanical pulp is unchanged in prices in London and Manchester at the moment of writing, but importers find it very difficult to do business. Enquiries are limited and only small prompt parcels are dealt in. From Scandinavia reports are arriving that business in that region is also dull. Prices are about as follows, c.i.f. London, Manchester, etc.:

Pine, 50% moist prompt	$10.20	to	$10.44
Pine dry prompt	20.40	to	20.60

For forward delivery a dollar extra is the usual charge.

* * * *

The Chemical pulp market is very firm and there is no sign of prices easing. As large consignments continue to arrive under contract, business is not very brisk. Scandinavians are also complaining of the slackness of English orders, but the dullness of the paper trade—in common with the paper trade in Germany, Sweden and other European centres—has affected the purchasing powers of mill owners. Prices are about as follows, c.i.f. London, etc.:

Bleached Sulphite	$52.00	to	$57.60
Easy bleaching sulphite No. 1	46.00	to	47.00
Sulphite "News," strong	39.00	to	41.00
Unbleached soda, No. 1	39.80	to	41.00
Unbleached soda, strong	38.00	to	39.00
Soda Kraft	38.40	to	39.20

* * * *

Esparto has increased in price. All qualities are now dearer owing to the heavy demand and few sellers. The imports during October from all sources reached only 10,037 tons compared with 16,358 tons during October 1912. Rags are also inclined to harden in price owing to the shortness in the winter collections. Wastepapers are unchanged, but heavy shipments have lately been made from English ports to America.

The mineral markets are not very satisfactory as China Clay for papermakers' use is inclined to be dearer and the demand is now exceeding the supply. Contracts for Gypsum, Mineral White, and other fillings to cover 1914 are nearly all completed and papermakers were called upon to pay from 12 cents to 15 cents a ton extra compared with the prices for 1912 and 1913 contracts. All the China clay pits are working full capacity and the labor unrest appears to have soothed away.

* * * *

Labor unrest in the textile trades and the past unrest in the papermaking industry has now caused a lull in the chemical trade and business is slow. Bleaching Powder, Ammonia Alkali, Caustic Soda and Salt Cake are all unchanged in price since last report.

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR WEEK ENDING OCTOBER 25th, 1913.

	Quantity.
Bleached Chemical Dry	381 tons
Unbleached Chemical Dry	2,870 tons
Chemical Wet	197 tons
Mechanical Wet	8,087 tons

Mechanical Wet:	
Canada	422 tons
Newfoundland	828 tons

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR WEEK ENDING NOVEMBER 1st, 1913.

	Quantity.
Bleached Chemical Dry	387 tons
Unbleached Chemical Dry	9,082 tons
Chemical Wet	297 tons
Mechanical Wet	11,478 tons

Mechanical Wet:	
Canada	1,002 tons
Newfoundland	

IMPORTS OF WOOD PULP INTO GREAT BRITAIN FOR TWO WEEKS ENDING NOVEMBER 8th, 1913.

	Quantity.
Bleached Chemical Dry	717 tons
Unbleached Chemical Dry	16,157 tons
Chemical Wet	297 tons
Mechanical Wet	24,114 tons

Mechanical Wet—	
Canada	6,585 tons
Newfoundland	3,864 tons

A new style Alligator has been tried out at Kenora, Ont., driven by gasoline motor. This is designed to supersede the Alligator built by West & Peachy driven by steam. It has a length of 26 feet, square nose in stern and 7 feet beam, total weight about four tons. It is driven by 20 h.p. engine at a speed of five miles an hour. The selling price is to be $2,220, which is $700 less than the present variety used. It has not gone far enough to say whether it will replace the other form of Alligator, but from present indications the prospects are very promising.

HOWARD SMITH'S NEW SOUVENIR.

The Howard Smith Paper Mills, Limited, have issued to the Trade a beautiful illustrated souvenir of their new mills at Beauharnois. It is most tastefully gotten up and is a credit to Mr. Smith's firm as well as to the Canadian Paper Trade in general. They are now manufacturing paper up to the capacity of the following well known watermarks: Tribune Bond, Byronic, Genoa Bond, Glen ora, Monarch Writing, Progress Bond, Bell-Fast Bond, Royal Record. This mill has been designed after the latest and most approved plans of modern paper mill construction. The different buildings that constitute the plant are of a most substantial character, and of sufficient size to allow for the duplication of the machinery now installed. In the design of the mill the utmost care has been taken to provide every facility for the economical handling of the stock, and to incorporate the most modern and approved features looking to the safety and comfort of the operators—no worthy device was overlooked in making the plans. The equipment is of the latest design and is the most perfect that can be obtained to produce the highest grades of Tub Sized Loft Dried Papers. Electricity is used as the motive power. Each group of machinery has a separate motor; the drives being on the unit system. An auxiliary steam plant has been installed, that nothing may interfere with the continuous running of the mill. No detail has been overlooked in order to secure absolute cleanliness of the product. For this reason copper has been used for the water and stock piping, and particular attention given to the Rag Department.

The location of the mill has many natural advantages, one of which is the abundant supply of pure water, and this is of that superior quality which is so essential to the manufacture of high grade papers. The mill manager is Mr. H. C. Courtney, who has a complete knowledge of the requirements of the Canadian trade. He has been in the paper business since the age of fifteen, and previous to coming to Canada was employed in various responsible positions with the manufacturers of high grade Tub Sized Loft Dried papers in the United States. He is now recognized as one of the best paper makers on the Continent, with an extremely wide knowledge of different processes.

The Howard Smith Paper Mills, Limited, have been for many years in the Canadian Paper Trade, and may justly claim to have a thorough and intimate knowledge of the desires and requirements of the Canadian market. With these new facilities for manufacturing, they are able to give their customers prompt deliveries of a more uniform quality of stock than can possibly be secured by importation.

The original equipment includes one 84-in. Fourdrinier machine, six 800-lb. beating engines, two 1,000-lb. washing engines, one Jordan engine and one rotary bleach boiler.

The Province of New Brunswick in compliance with a vote passed at the last session will make a complete survey of their Crown Land areas, giving the character and quality of the lumber, the quantity of timber and the reproduction capabilities of the various areas. The work will be under the supervision of Mr. W. H. Berry, Superintendent of Scalers.

Books for Paper Makers

THE PAPER MILL CHEMIST. By Henry P. Stevens, M.A., Ph.D., F.I.C. 12mo., cloth, 280 pages; 67 illustrations; 82 tables, and a cross index.
Part Contents:

Raw Materials and Detection of Adulterants. Properties and Analysis of Lime, Soda, Caustic Alkali, Mineral Acids, Bleach, Antichlors, Alum, Rosin and Rosin Size, Glue, Gelatin, Casein, Starch. Mineral Loading. Coloring Matters. Ammonia Solution. Copper Sulphate. Tannic Acid. Coal Tar Dyes. Fibrous Raw Materials Half Stuffs and Their Treatment. Cellulose and the Isolation of Papermaking Fibres. Examination and Properties of Rags. Rag Boiling. Pulp Woods. Mechanical, Sulphite and Sulphate Pulps. Price $2.50 net.

A TEXT BOOK ON PAPERMAKING. By C. F. Cross and E. J. Bevan. Third Edition, revised and enlarged; 12mo, cloth, 419 pages, 98 illustrations and 2 large folding plates.
Part Contents:

Cellulose. Physical Structure of Fibres. Scheme for the Diagnosis and Chemical Analysis of Plant Substances. An Account of the Chemical and Physical Characteristics of the Principal Raw Materials, etc. Price $5.00 net.

THE TESTING OF WOOD PULP. By Sindall & Bacon. A Practical Handbook in Two Parts and an Appendix.

Part I, The Determination of Moisture in Pulp; Part II, The Bleaching Qualities of Pulp; Appendix, (1) Chemistry of Bleaching Powder, (2) Bleach Liquor, (3) Oxidation of Cellulose. Illustrated. Price $2.50 net.

PAPERMAKING. By Cross & Bevan. Third Edition. A standard Text Book written by scientific experts. Price $5.00 net.

RESEARCHES ON CELLULOSE. New Edition (1905-1910). By Cross & Bevan. Deals with the technical progress of cellulose of value to the practical paper maker. Price $2.50 net.

THE MANUFACTURE OF PAPER. By R. W. Sindall, F.C.S. A popular treatise of the subject. Price $2.00 net.

PAPER MAKERS' POCKET BOOK. By James Beveridge. New edition, especially compiled for mill operatives, engineers, chemists and office officials. Price $3.50 net.

WOOD PULP AND ITS USES. By Cross & Sindall, with the collaboration of W. N. Bacon; 264 pages. It treats of the Structural Elements of Wood; Sources of Supply; the manufacture of Mechanical Wood Pulp; News and Printings; Wood Pulp Boards; Utilization of Wood Waste; Pulp Industries. Price $2.00 net.

BAMBOO FOR PAPERMAKING. By R. W. Sindall. Price 75c. net.

CHAPTERS ON PAPER MAKING. By Clayton Beadle. In 5 volumes. A series of lectures, to which are added Questions and Answers. Price, per volume, $2.00 net.

PAPER TECHNOLOGY. By R. W. Sindall, F.C.S. The book gives a birds-eye view of the subject of paper making, with full details on paper testing. Price $4.00 net.

CELLULOSE. By Cross & Bevan. An outline of the chemistry of the structural elements of plants. Price $4.00 net.

OUTLINES OF STATIONERY TESTING. By H. A. Bromley, presenting in concise and practical form the essential points of stationery testing. Price 75c net.

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State of Maine Report

(Special to Pulp and Paper Magazine.)

Bangor, Me., November 27th, 1913.

The State of Maine now employs 11.282 people in its pulp and paper industry, excluding the many thousands of foresters which are so closely identified. This figure is taken from the report of the Main Department of Labor and Industry, which was listed last week by Commissioner John F. Connelly. This report, which is the first biennial one of the Department, comprises also manufacturers of paper bags, boxes, leather board, fibre board, sandpaper, miscellaneous paper goods, and pulp butter and pie dishes.

The following extracts from the report shows the number of employed in the respective mills:

Pulp Mills.

International Paper Company, East Livermore, 70; Androscoggin Pulp Company, Standish, 35; Androscoggin Pulp Company, Windham, 260; E. I. Dupont de Nemours Powder Company, Windham (pulp for dynamite), 46 Forest Paper Company, Yarmouth, 250; International Paper Company, Jay, 129; Howland Pulp and Paper Company, Howland, 75; Nekonegan Paper Company, Old Town, 60; Penoboscot Chemical Fibre Company, Embden, 65; Shawmut Manufacturing Company, Fairfield, 76; United Box Board Company, Fairfield, 200; Hollingsworth & Whitney Company, Madison, 95; Skowhegan Pulp Company, 40; Riverside Pulp Company, Skowhegan, 13; Colonial Paper Company Buxton, 20; Colonial Paper Company, Hollist, 18.

Pejepscot Paper Company, Lisbon, 252; Poland Paper Company, Mechanics Falls, 175; S. D. Warren & Co., Westbrook, 1,150; International Paper Company, Jay, 600; Cushnoc Paper Company, Augusta, 250; Hollingsworth & Whitney Company, Winslow, 730; International Paper Company, Rumford, 680; Oxford Paper Company, Rumford, 825; Eastern Manufacturing Company, South. Brewer, 668; Great Northern Paper Company, Millinocket, 950; Great Northern Paper Company, East Millinocket, 285; Katahdin Pulp and Paper Company, Lincoln 187; Orono Pulp and Paper Company, Orono, 260; International Paper Company, 100; Great Northern Paper Company, Madison, 300; The Savage Manufacturing Company, Skowhegan, 26; St. Croix Paper Company, Woodland, 525.

Paper Bag Manufacturers.

Grand Lake Co. Woodland, 200; Continental Paper Bag Co., Rumford, 700.

Paper Box Manufacturers.

Auburn Paper Box Company, Auburn, 60; Automatic Machinery Company, Auburn 80; Lincoot Oldham Box Company, Auburn 20; Standard Box Company, Auburn, 10; F. S. McRouland, Gorham, 30; Casco Paper Box Company, Portland, 82; Portland Paper Box Company, Portland, 26; W. H. Alger, Gardiner, 28; Bangor Box Company, Bangor, 17.

Fiber, Leather and Box Boards Manufacturers.

National Fibre Board Company, East Poland, 40; United Box Board Company, Benton, 63; Sherman & Co., Belfast, 14.

Pulp plates and dish makers.

Keyes Fibre Co., Fairfield, 58.

Paper Goods.

L. H. Nelson, Portland.

TENDERS FOR PULPWOOD LIMIT

TENDERS will be received by the undersigned up to and including Wednesday, the 31st of December next for the right to cut pulpwood on a certain area situated on the Metagami River in the District of Temiskaming.

Tenderers shall state the amount they are prepared to pay as bonus in addition to the Crown dues of 40c. per cord for Spruce, and 20c. per cord for other pulpwoods, or such other rates as may from time to time be fixed by the Lieutenant-Governor in Council, for the right to operate a pulp mill and a paper mill on or near the area referred to.

Such tenderers shall be required to erect a mill or mills on or near the territory and to manufacture the wood into pulp and paper in the Province of Ontario, the paper mill to be erected when directed by the Minister of Lands, Forests and Mines.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for ten per cent. of the amount of their tender, to be forfeited in the event of their not entering into an agreement to carry out the conditions, etc.

The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested, etc., apply to the undersigned.

W. H. HEARST,
Minister of Lands, Forests and Mines.

Toronto, Ontario, September 17th, 1913.

GUS BORLING

Wanted the address of Gus Borling, a Swede, who came to this country several years ago. Employed first at Chatham, N. B. in the Maritime Sulphite Pulp Mills, and later, we believe at Riordon's Pulp Mill at Hawkesbury. Address F. J. care Pulp & Paper Magazine.

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OF CANADA

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Toronto Office, 44-46 Lombard Street. Phone Main 6764.

Published on the 1st and 15th of each Month. Changes in advertisements should be in Publishers' hands ten days before date of issue. The editor cordially invites readers to submit articles of practical interest which, on publication, will be paid for.

SUBSCRIPTION to any address in Canada, $2.00.—Elsewhere $2.50 (10 Shillings.) Single Copies 20c.

VOL. XI. MONTREAL, DECEMBER 15, 1913 No. 24

An Expansion Significant to Paper Men

A REMARKABLE expansion and enlargement of a number of the largest publishing houses in Canada is reported elsewhere in our news columns. This steady growth of the past few years has been the subject of remark frequently by our students of economy.

A number of points come to us as the cause of this remarkable movement. The greatest factor is probably the realization of the value of good advertising as a means of selling goods. This not only affects publications, but also the general advertising by catalogues, circulars and various kinds of printed matter. This phase in the publishing business has developed to enormous proportions within the last ten years, so that now no progressive houses attempt to move their goods except through the medium of advertising. For the money invested, it is found that this method of salesmanship is the cheapest, quickest and most business-like. The result has been the building up in the publishing centres of Canada of large publishing firms who cater to the many divergencies and specialties of advertising methods. Such has been the success of this that all firms executing this type of work in proper shape have been forging ahead very rapidly. A second cause is the expansion of the publication of technical and trade journals and the greater appreciation of their value by business men, engineers and artisans. It is true that these journals depend chiefly on the first mentioned point of advertising for their support, but catering to the classes which they do, they offer the advertisers the cheapest means of reaching customers in large quantities. Again, we find an enormous growth in the publication of financial weeklies in the financial centres of the country. All of these papers not only cater to the highest class of men in the country, but reflect the progress and growth of Canada as a whole. The need for such papers has been very great and it is only now that such a need has been met. Again the publication of books in our own country has displaced the importation of many books which should have been published here many years ago. We do not now see every Canadian writer, who writes a book, either fiction or otherwise, running down to the United States to have the same published. There is a rapidly growing appreciation among the literary and scientific men in this country that publishing interests of Canada are rapidly placing themselves in a position to adequately cope with our growing demands. Other points which have augmented the increase in the publishing business have been the greater use by business firms of printed matter, a large number of societies throughout the country who publish reports, bulletins and so on, and the growth in the reading of the general magazine. All these things have combined to generate flourishing conditions for publishing firms interested in their respective lines.

Now these points have great significance for the manufacturer of paper, because every enlargement to the publishing houses, the addition of presses means that these presses must be kept going round all the time, and they don't print on anything but paper. We are pleased to note that there is among the Canadian publishers greater appreciation of the qualities of paper made in our own country and in many instances some of the most prominent publishers in this country insist on paper made here. They are being rewarded by finding that our home supply is well up to the mark in quality, price and delivery.

We need but mention the number of firms who are expanding to show that the present time is one of the greatest significance to paper manufacturers. In Montreal, the Industrial & Educational Press, Limited, publishers of this Magazine, have just purchased a large piece of land and expect in the Spring to erect a large publishing house where they will combine their Toronto and Montreal plants, which have already grown to large proportions. The Southam Press in Montreal have just completed a ten-storey addition to their already large premises. In Toronto, the firms of Hugh C. McLean, Limited, The McLean Publishing Company. The Methodist Book Room, Warwick Brothers and Rutter are all at the present time building or starting further large extensions on their printing premises, doubling and trebling their capacity.

The fact is that the publishing business in this country has grown even faster than the paper manufacturing end. This enormous growth in the general publishing business, is augmented by the increased circulation of many of our newspapers both in the east and in the west, and also by the fact that a number of new papers have been started. The Canadian market for paper is looking very bright, and rapidly improving.

Tariff Talk

A GREAT deal of tariff talk is continually mooted by political speakers on both sides of the House. Sir Wilfrid Laurier, the leader of the Opposition, in a number of speeches has brought up the matter of tariff reduction, and he is coming out strongly in favor of a reduction of tariff on all food products, since the present entry of our food products into the United States has made the cost of the same to the Canadian workingman and consumer very much higher. It is expected that by reducing the tariff, or making free many of these products, the cost of living would be substantially reduced in Canada. There is also throughout the west a radical wing of the Liberal Party who are proposing to increase the British Preference and lower some of the schedules on manufactures, one of which will be paper and lumber since throughout the middle west these commodities are not produced. Now, there is no doubt that in general the tariff of this country should be reduced. Most manufactures do not need all the protection that they are getting at the present time and any tariff which exceeds the need of protection to an industry should be reduced since tariff, of course, is a tax on the people. In the question of pulp and paper, we have frequently pointed out that some of our grades do not need any protection. Sulphite, for example, is on a sufficiently strong basis at the present time to do without the protection of 25% which it has at the present time. Similarly, ground wood and print paper might go on the free list. In the higher grades of paper, this country is only getting on its feet. We do not need any exorbitant protection, but all high grade papers should have at least 25% and specialties should carry 35%. These industries are in their infancy and just getting started and have not developed to the proportions which pulp and news print have. The agitation in the west for increasing the British Preference is a good move in general but it certainly is not a good thing for the paper manufacturer. The main competition we have here in book papers and many high grade bonds, linens and writings is entirely from England and to further lower the tariff, which at present is only 15%, on these commodities would seriously cripple our manufacturers who are attempting to get a hold in the country. Before any such tariff tinkering goes on by the Government in power, they should hear all sides of the question from various pulp and paper manufacturers as there will be little difficulty in arriving at a satisfactory tariff which will be agreeable to pulp and paper men in general and which will allow a considerable reduction in the present tariff rates and at the same time not remove the protection, which many of our grades of paper need.

New Zealand: Our New Paper Market

THERE has recently been signed a number of contracts in New Zealand for newspaper to be shipped direct by boat from Canada. This will mean a great deal of additional shipping for Vancouver and will place the paper industry in general in this country on a much improved basis. Both the east and west coasts of New Zealand are using rapidly increasing quantities of print paper as well as other grades. There is every indication that British Columbia firms will be able to supply the bulk of the print paper to New Zealand and Australia. During the quarter ending September 30th we shipped into New Zealand $170,000, worth of news print together with some wrapping. In that country, we enjoy a preference of 20%, which means that Canadian paper should practically control that market. Not only will this assist British Columbia mills, but it will take some of their production which has been coming east in competition with other Canadian mills, into other channels, thus relieving the pressure in the middle West. These additional trade relations with other countries are developing to be of great value to paper manufacturers. The more we can build up such trade between the various units of the British Empire, the greater will be the bond of imperial unity.

Imports and Exports

CANADA'S total paper imports have been increasing again at a rapid rate during the past year. Figures for the twelve months ending September 30th show the total imports as $8,738,057 over figures for 1912 of $7,342,142. Of the figures for this year, $6,000,000 comes from the United States, while less than $2,000,000 comes from Great Briatin. This shows where our trade relations are and should thoroughly satisfy any arguments of paper manufacturers in the United States that their Congress has been unfair to them in opening their markets to us on one grade of paper only, while they continue to supply us with innumerable varieties of paper on which the labor and mill work is very much more in the one grade which we supply to them. The export figures for the same period mentioned above show our total exports to be $9,124,183 over exports for the previous year of $4,342,493. Of this $9,000,000 total exports, a little over $7,000,000 went to the United States, while $540,000 went to Great Britain. Our exports of wood pulp have shown practically no increase during the present year over the year ending September 30, 1912. The figures for the twelve months ending 30th September 1913 are $5,527,739 and for the previous year $5,357,969. Of this $4,500,000 went to the United States, while the rest went to Great Britain. The pulp wood figures show an increase of something over $1,000,000 as follows:—September 30th, 1912, $6,166,627; September 30th, 1913, $7,595,325.

British Columbia Labor

THE matter of labor difficulties in the Province of British Columbia has been one of great moment to pulp and paper manufacturers. The greatest difficulty with the paper companies which have started in that province has been the very unsatisfactory labor conditions. Labor there demands a high rate and is at the same time inefficient and unreliable. The recent disturbances in the coal mines of Vancouver Island have simply been an indication to the public of what the real labor conditions are in that province. Labor unions, which are a wing of the I.W.W. ("I won't work") and which are controlled from the United States have not only been unreasonable in their demands, but have gone to extremes which the common decency of this twentieth century shudders at. Murder, bloodshed, starvation and all the ills of poverty, through a cold Canadian winter have been unheeded by their frantic leaders. Now we hear that they propose to appeal from the decisions of the criminal courts to Ottawa to have the sentences— which were by no means adequate repealed or ameliorated. Again, we find that they have successfully appealed to Ottawa to prohibit the immigration of all artisans and laborers into that province until the 31st of March. A great many difficulties come up in this situation, but there is no doubt that the order in council passed on December 8th was the weakest possible solution of the difficulty. The Province of British Columbia was in any case the worst province in Canada to manufacture in and, now that the Government listens to the hue and cry of unreasonable agitators, a serious situation has become unbearable. It simply means that labor unions hold up industry, at the point of the gun, while they rifle their pockets.

Editorial Comments

A few years ago, the Dominion Government appointed a commission to investigate the systems of industrial education in other countries, and also, to report on the necessity for such education in this country. Part of this report had been handed down last May and the remainder is about finished, but now we find, from a recent press report, that the Hon. T. W. Crothers, Minister of Labor, has undertaken to criticize the work of the Commission and has stopped any further payments to the members of that commission who have the preparing of the report in hand. It is said that the Minister does not contemplate giving effect to the recommendations made by this commission and that his desire is to get rid of the report although several parts have already been presented to Parliament.

This action on the part of the Minister is to be deplored and is resented by educationists all over Canada. The work of Dr. Robertson, chairman of the Commission and Secretary Bengough, has been most painstaking and complete and covers very thoroughly, by facts, the recommendations made by the commission. It is to be hoped that the Minister will not delay or obstruct the work that has been accomplished by these men. We believe that great things could be accomplished along these lines if the employers would co-operate. Industrial education pays and would be a great asset to the industry Educated workmen are a necessity to proper development and recommendations from pulp and paper manufacturers as a body would doubtless have considerable effect in the furtherance of the cause.

* * * *

Announcement has been made through American trade journals that the book paper branch of the

American Pulp & Paper Association has decided to organize a statistical organization of their own, not that the larger association has been inefficient, but that the work has grown to such a large extent that the book people feel a separate organization is necessary to serve their interests. To take charge of this work, which went into effect on the 1st of this month, the book manufacturers have been most fortunate in obtaining Judge Charles F. Moore, formerly secretary of the Pulp & Paper Association with Mr. Hastings. The idea, it seems, has not been entirely of recent date, but it has been felt for some time that book mills had not sufficient in common between them and other divisions of the parent association to make their statistical work at least harmonious. In fact, it has been announced that the only purpose of this new organization will be a statistical department. There is the warmest feeling between Judge Moore and Mr. Hastings, both of whom appreciate the others sterling worth and exceptional adaptibility to such work. The advancement of the movement for organization is certainly to be commended and this newest step, although many cannot feel that it is necessary to separate it from the other organization will promote efficiency to a very large degree.

* * * *

The employers defence union which has developed in England has raised a guarantee fund of £50,000,000 sterling. This is organized, with the purpose of combating unreasonable demand and encroachment of labor unions. It concludes the employers rights to engage whom they like as employees. In other words the right to employ free workers. The union is formed to counteract the unrest in the industry and transportation circles. So far large sums have been guaranteed and all taxes will be made pro rata on the members not to exceed more than 7½% of the amount guaranteed in any one year. The Trade Union there object strenuously to this union, but it is a most absurd contention. The employers should be banded together as the Trade Unionists are themselves.

Employers are only safeguarding their own interests in establishing such a union, and there is no sane argument against such a venture. The only thing is that English employers have outdone those in other countries to this extent.

This is good food for thought for mill owners and managers in all parts of the world.

* * * *

Great anxiety is experienced by many people interested in the timber and pulp wood, over the alarming proportions which the demand for Xmas trees has assumed. It really has in some places become a serious proposition and is assuming the form of menace to lumber interests. To this end the New York State Forestry School is endeavoring to solve the problem by giving out information as to how Xmas trees may be grown and marketed to advantage. It is said that the City of New York alone spent last year over one and a half million for these trees. The objection over the entire country is the destroying of young trees which have gotten over the difficult period of growth and which in a few years would be available for pulp wood or in more years would be available for lumber. We are inclined to think of our country as one of inexhaustible forest resources and laugh at any such proposition to further our conservation. But as we have often pointed out this is not so and our greatest need is a fuller appreciation of our conservation needs, especially in forestry.

* * * *

The paper manufacturers on looking over the Workmen's Compensation Act of Ontario are agreed that the act does not do justice by any means to the paper industry. So long as the act is only provincial, it can hardly be said to be proved that the consumer will eventually pay the whole cost of the scheme. If all provinces had a uniform act, this might be true, but the present burden must come on the Ontario manufacturers. The official view of the Manufacturers' Association is decidedly against the proposed act. Some of the most important features have been overlooked. Employers, who do not fall into one of the two classes specified, are deprived of the defences heretofore available when sued for damages and will practically be at the mercy of the employees. The Manufacturers' Association have gone direct to the Government to seek relief from this gross imposition. The whole affair is in many ways a bad bungle and has done a gross injustice to the manufacturers. Labor interests are naturally satisfied since they get the whole pie.

U.S. GOVERNMENT SPECIFICATIONS.

Washington, D.C. Nov. 24, 1913.

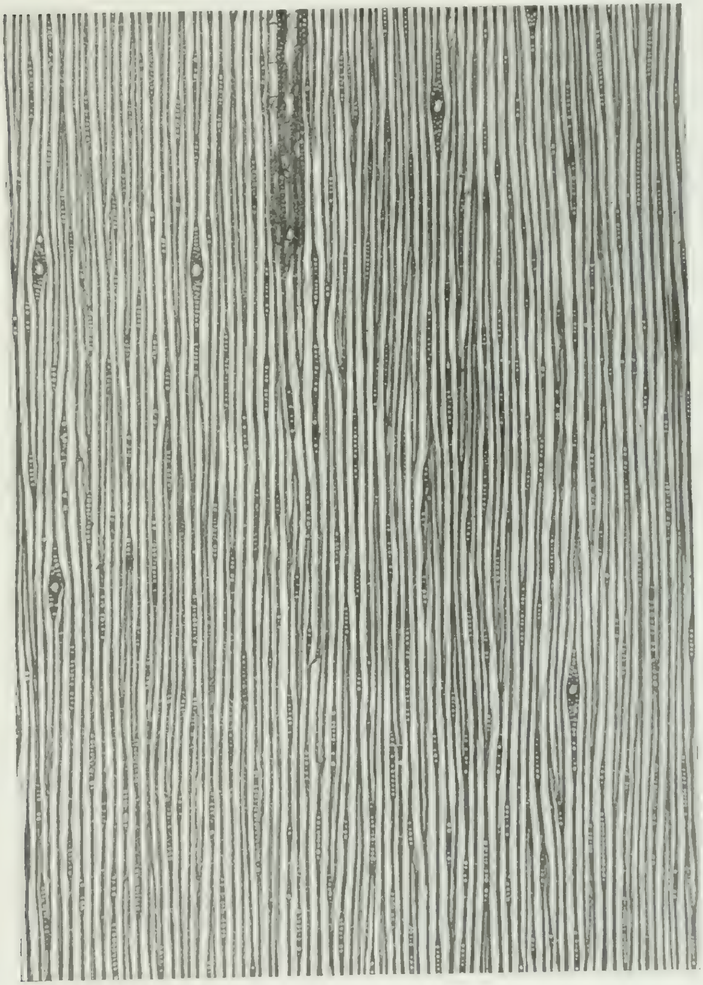
In connection with the recent conference of bidders and government officials at the Bureau of Standards to consider specifications for bids for paper for the coming fiscal year, the "technical committee" held a meeting on Friday last. The Joint Committee on Printing is made up of three members of each House of Congress, who are really the "directors" in the matter of government paper. This board, in turn, appointed a committee of five, to revise the specifications for paper. That committee was composed of a member of the Bureau of Chemistry, Department of Agriculture; Mr. Clark, of the Bureau of Standards, a clerk of the Joint Committee on Printing, Captain Brian, deputy public printer, and Mr. Dias, inspector, of the Government Printing Office.

At its meeting the technical committee adopted practically every one of the suggestions made at the recent conference. These were embodied in the report and changes made accordingly in the specifications.

Micro. Photographs of Paper Making Woods---SPRUCE

By H. D. TIEMANS, U.S. Forest Products Laboratory, Madison, Wis.

Continued from last issue



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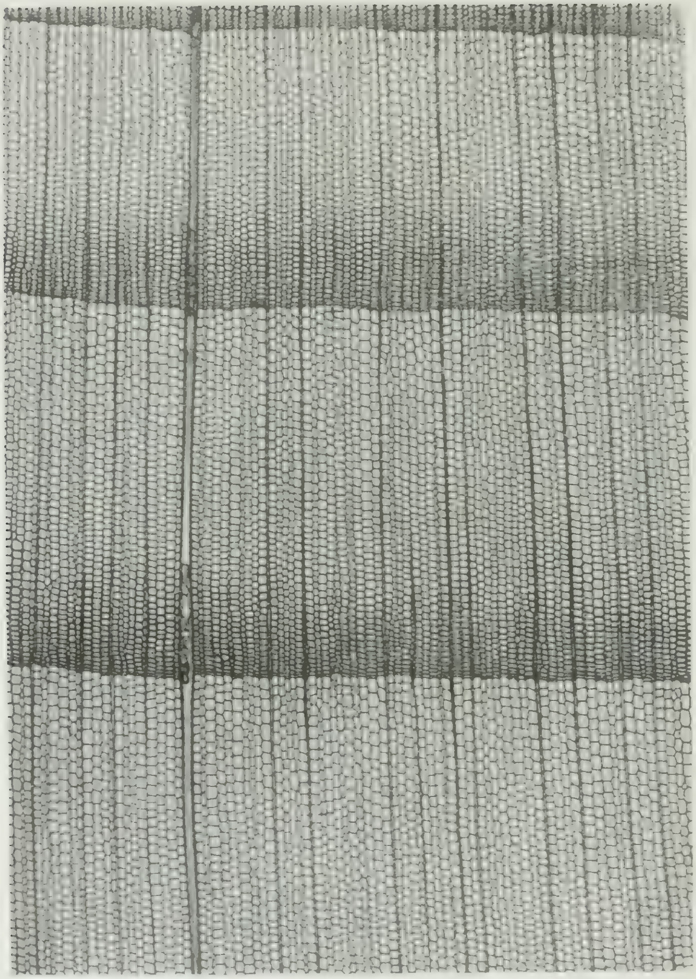

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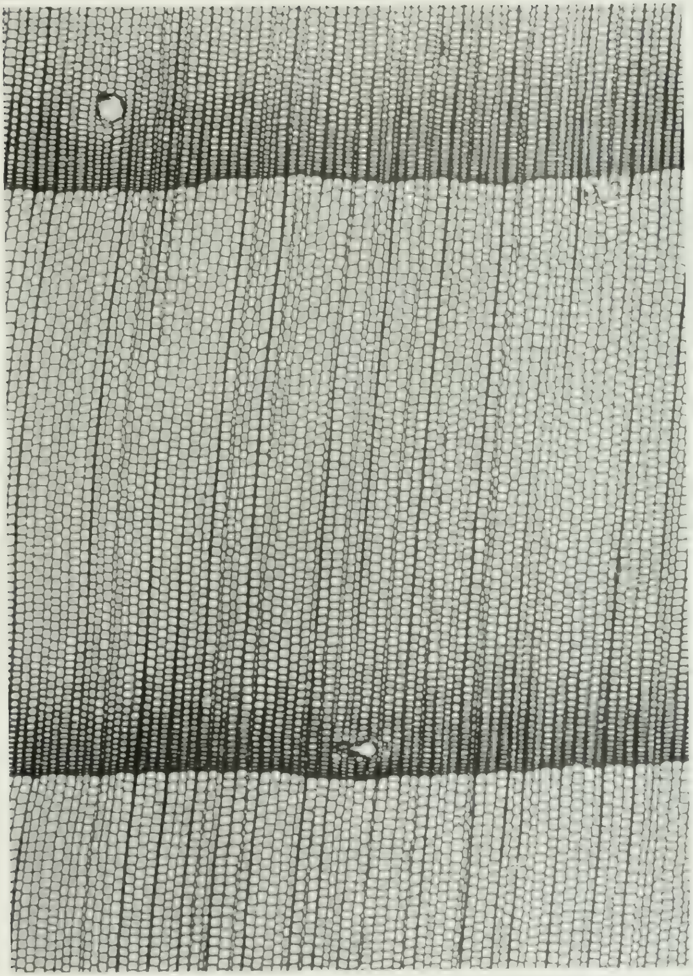
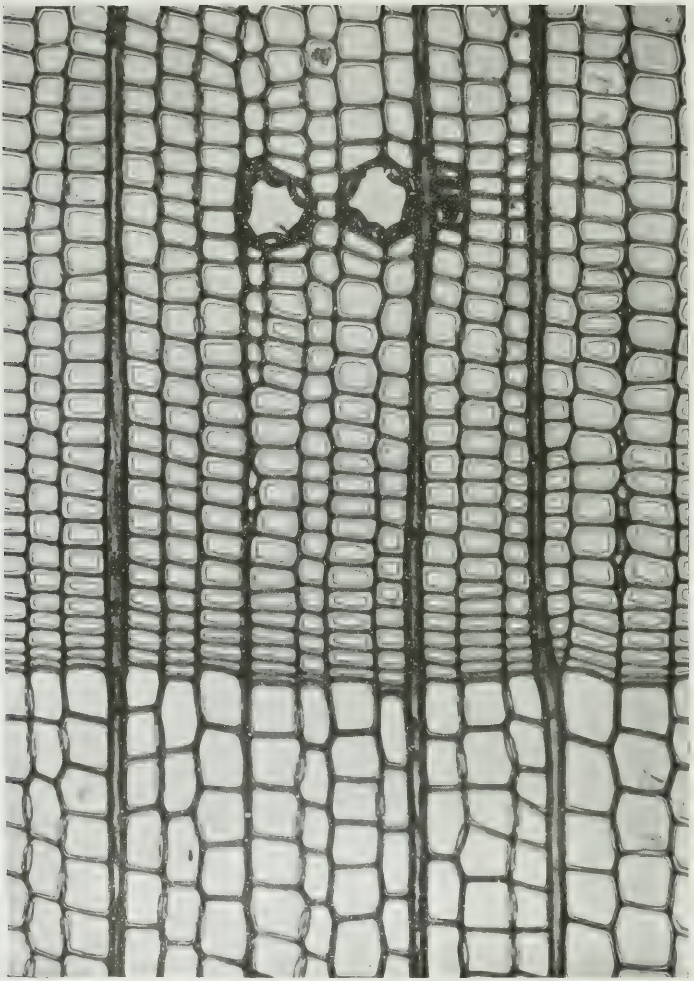


WHITE SPRUCE Picea Canadensis, Transverse X 50



RED SPRUCE—Picea Rubens, Transverse X 250

THE ABSORPTION OF ALUMINA BY FIBRES

By **E. SUTERMEISTER, Westbrook, Maine.**

IN "Wochenblatt fur Papierfabrikation" No. 17 1912 p. 1454, Schwalbe and Robsahm published the results of a research on the role played by alumina in the sizing of paper. In this work they beat up sulphite fibre in distilled water in a small Hollander, treated it with chemically pure aluminum sulphate and made careful analyses of the fibre and waste water. The conclusion reached from this part of their work was that sulphite fibre was able to decompose quantitatievly the amount of aluminum sulphate (3%) generally used in sizing paper.

This conclusion is opposed by the fact that alumina in solution is frequently found in the white water from paper machines even when less than 3% of alum on the weight of the stock is used. It is also contradictory to the results of certain researches which were made to see how great an amount of alum would be decomposed by various fibres. This investigation formed the basis of experimentation on a commercial process which it is not desired to discuss here but as the preliminary research was interesting it may be well to give it in detail.

The fibres used were bleached soda poplar, sulphite spruce and rag stock. The soda poplar was washed repeatedly with hot water, while the sulphite and rag stock were given a preliminary treatment with dilute hydrochloric acid previous to the washing. When only faint traces of chlorides were removed by the water the washing was considered finished and the fibre was squeezed out, broken up into small pieces, and air dried out of contact with dust. Ash determinations on the three samples gave the following results:

	Weight in grms.		Percentage of Ash	
Sample	Air dry	Bone dry	Air dry	Bone dry
Soda poplar.	2.0000	1.9320	0.665	0.668
Sulphite Spruce	2.0000	1.8930	0.275	0.290
Rag Stock......	2.0000	1.9036	0.265	0.278

The alum solution employed was made from a good grade of commercial aluminum sulphate such as is used in the manufacture of high grade book papers. After dissolving the alum in distilled water to a dilute solution it was allowed to stand to permit basic salts to separate and was then filtered and only the perfectly clear filtrate used. This solution was analysed and found to contain in each cubic centimetre:

0.001645 grm. $Al_2 O_3$ and $Fe_2 O_3$
0.003890 grm. SO_3.

The alum used contained less than 0.5% of $Fe_2 O_3$ and as 0.001645 grm of $Al_2 O_3$ requires 0.003860 grm. of SO_3 to form $Al_2 (SO_4)_3$ it is seen that the solution used consisted of nearly pure aluminum sulphate.

The tests on soda poplar were made by shaking up a weighed sample of the pulp with distilled water and a measured volume of the alum solutiom and allowing it to stand with frequent shakings for a considerable length of time. Unlike Schwalbe's experiments the fibre in these tests came in contact with nothing but glass or porcelain. After the exposure to alum solution, the fibre was filtered off on a Gooch crucible, washed thoroughly with hot water, dried, weighed and the ash determined by ignition. The filtrate and all the washings from each sample were thoroughly mixed, divided into exactly equal parts and the alumina determined in one and the SO_3 in the other.

The conditions of the tests on soda poplar were as follows:

	Air dry fibre grms.	Bone dry fibre grms.	Water cc	Alum cc	% $Al_2 (SO_4)_3$ on b. d. fibre	Time in contact with solution
(1)	2 0000	1 9320	150	6	1.71	46 hours
(2)	2.0000	1.9320	150	18	5.13	30 hours
(3)	2.0000	1.9320	140	54	15.39	29 hours
(4)	2 0000	1.9320	0	162	46 17	29 hours

The analyses of the filtrates and washings gave the following results for alumina:

	$Al_2 O_3$ used grms.	$Al_2 O_3$ found grms.	Wt. absorbed by fibre grms.	amount absorbed as % of bone dry fibre
(1)	.0099	.0049	.0050	0.26
(2)	.0296	0240	.0056	0.29
(3)	.0888	.0844	0044	0.23
(4)	.2665	.2674	0009	0.05

The analyses of the other half of the above solutions for SO_3 gave:

	SO_3 used grms.	SO_3 found grms.	Increase of SO_3 in solution grms.
(1)	.0233	.0240	.0007
(2)	.0700	.0710	.0010
(3)	.2101	.2124	.0023
(4)	.6302	.6370	.0068

In each case there is a slight increase in the soluble SO_3 which confirms Schwalbe's observation that no SO_3 is absorbed by the fibre.

The results of the analyses of the dried fibre after the alum treatment are given in the following table:

	(1) grms.	(2) grms.	(3) grms.	(4) grms.
Bone dry fibre used..	1.9320	1.9320	1.9320	1.9320
Bone dry fibre recovered	1.9118	1.9088	1.9141	1.9052
Percent loss........	1.04	1.20	0.93	1.39
White Ash in original fibre.............	0133	.0133	.0133	.0133
White Ash in recovered fibre......	.0088	.0078	.0082	.0076
Percent of original ash lost..........	33.8	41.4	38.3	42.9

These figures for fibre recovered and its ash content show little as to the absorption of alumina but they do indicate that alum solution attacks the fibre substance causing loss of organic material since the weight of fibre recovered plus the weight of ash lost and that of alumina absorbed is not equal to the weight of fibre at the start.

Since the differences in amount and concentration of the alum appeared to have no influence on the results in the case of soda poplar the experiments on rag stock and sulphite spruce were limited to a single concentration. For 2.0000 grams air dry fibre there were used 150 cc of distilled water and 54 cc of alum solution and the flasks were allowed to stand at room temperature for 48 hours.

The data for these two experiments are as follows:

	Sulphite grams	Rag Stock. grams
Bone dry fibre used.........	1.8930	1.9036
Bone dry fibre, recovered....	1.8802	1.9131
Ash in original fibre.........	.0055	.0053
Ash in recovered fibre.......	.0036	.0035
Al_2O_3 used	.0888	.0888
Al_2O_3 found in washings....	.0890	.0868
SO_3 used in washings.......	.2101	.2101
SO_3 found in washings......	.2090	.2098

The sulphite fibre shows a loss in weight which can only be accounted for by assuming that the organic matter is attacked since no alumina is absorbed and the percentage of ash is diminished instead of increased. In this respect it is similar to the soda poplar. The rag stock, on the other hand shows a gain in weight amounting to 0.5% of which only 0.01% can be accounted for by absorption of alumina.

Since these results were so different from those of Schwalbe and Robsahm it was attempted to confirm them by a somewhat different method of procedure. Five grams, air dry, of each of the fibres prepared, for the previous experiments were weighed out and the moisture determined on a duplicate sample. The 5-gram samples were then spread out on watch glasses, saturated with alum solution measured from a burette, and allowed to stand 48 hours during which time they were covered with bell-glasses to prevent evaporation or contamination with dust. At the end of this time the fibres were thoroughly washed with four portions of hot water, dried, weighed and the ash determined. The washings were combined, evaporated to 1000 cc, divided into two parts and both Al_2O_3 and SO^3 determined.

The alum solution used for these experiments was not of exactly the same strength as that for previous work but contained in each cubic centinetre .001 694 grams Al_2O_3 and .003990 grams SO_3.

The complete figures for these tests are in the table below:

	Rag.	Sulphite.	Soda Poplar
Air dry fibre used grams.	5.0000	5.0000	5.0000
Bone dry fibre used, grams.	4.7880	4.7345	4.7585
Weight of ash in fibre. grams................	.0133	.0137	.0328
Volume of alum solution used, cc..............	22.12	21.25	21.56
Al_2O_3 used, grams......	.0374	.0360	.0366
SO_3 used, grams.	.0883	.0849	.0860
Bone dry fibre recovered, grams.	4.7601	4.7049	4.7293
Weight lost.	.0279	.0296	.0292
Ash in recovered fibre, grams................	.0093	.0091	.0202
Percent of original ash lost............	30.1	33.5	38.4
Al_2O_3 in washings, grams	.0312	.0280	.0228
SO_3 in washings, grams.	....	.0827	.0850
Percent. of Al_3O_2 absorbed on weight of bone dry fibre............	0.13	0.17	0.29
Percent. SO_3 absorbed on weight of bone dry fibre................	......	0.05	0.02

These results fully confirm those of the first series both as to the course of the reaction and the magnitude of the changes. This is especially true of the soda poplar but even in the case of the rag stock and sulphite there is no mistaking the meaning of the results.

The conclusions which can be drawn from this research are that the absorption of alumina by fibres is not greatly influenced by the amount or concentration of the alum solution used and that the percentage of Al_2O_3 absorbed will not rise to over 0.3% of the weight of the fibre and will probably be considerably less than that. In no case does the fibre appear to be able to decompose more than 1.95% of its weight of aluminum sulphate ($Al_2[SO_4]_3 .18 H_2O$).

The great difference between these results and those of Schwalbe and Robsahm is probably due in part to the use of different fibers but still more to the use by the latter of a Hollander in which the materials would come in contact with metallic surfaces.

NEWSPAPER STATISTICS REPORTED BY CENSUS.

It has always been conceded that the Americans are the greatest of newspaper readers. If any proof were needed to support that fact it is furnished in the bulletin issued yesterday by the Bureau of Census, dealing with the printing and publishing industry of the United States.

According to the figures of the Census, there were in 1909, 31,445 separate establishments in the industry, 388,446 persons engaged in the industry, of which 258,434 were wage earners. The total capital invested amounted to $588,345,708. New York State led all others in printing newspapers, periodicals, and books. It employed one fourth of all the wage earners and sent forth to the reading public three-tenths of the total products. Illinois followed the Empire State as a second, Pennsylvania coming next.

There were 2,600 daily publications reported in the year 1909, as compared with 2,425 in 1904. Of these 2,600 dailies, 760 were morning papers and 1,840 afternoon or evening papers. The circulation of newspapers published in ten cities New York, Chicago, Philadelphia, St. Louis, Boston, Cleveland, Baltimore, Pittsburgh, Buffalo, and San Francisco—constituted 47 per cent. of the total daily circulation of the entire country for 1909, as against 50.5 per cent. in 1904.

THE TRUE POLICY OF INDUSTRIAL EDUCATION

By J. W. MacMILLAN.

WAS it not Cuvier who could construct an entire animal, pterodactyl or megatherium from a single claw? But why should he, even if he could? Because he needed the beast to explain the claw.

Thus if we are to comprehend Industrial Education we must meditate for a moment at least upon the purpose of all education There is no better definition than that of Milton, who was, according to Professor Seely, the "most cultivated man of his time, perhaps we might say the most cultivated man that ever lived in England." Milton defines education in these words, "I call therefore a compleat and generous education that which fits a man to perform justly, skillfully and magnanimously, all the offices, both private and public, of peace and war."

Education is thus seen to be something at once practical and noble. It is at once useful to man and it enlarges the man who makes use of it. It reckons at once with the variety of the world and the wonderful powers of the human mind. It opposes at the same time ignorance and pedantry, the feeble dreams of sentimentalism and the aridity of a culture which feeds imagination and spirit with sordid conceptions of the meanings and the uses of life's materials.

All education if it is to be education at all, must be of this character. Every fragment of it must be a real part and implement of the whole, as was Cuvier's claw of Cuvier's monster. From the kindergarten to the post-graduate school there must be conformity to the same standard.

The first fact that we must face in the consideration of public education is that more than 90% of the pupils cease from school at or before the end of the school training. At or before the age of 14 the juvenile population says farewell to teacher and school task and pours forth, like the children of Hamelin after the Pied Piper, into the labor and citizenship of the nation. Common school education must be planned as a closed circuit, a finished process. It cannot be arranged as a preparation for the high school without dealing treacherously with the 90% who are never to see the high school. The nine must not be sacrificed in the interests of the one.

Another fact which we must notice is that most of these children leave school of thier own choice. They are not removed in order to add to the income of the family. It is not parental compulsion that drives them from the school to the shop and the store. More often the parental influence urges them to remain at their books. They go because they want to go, and because they want to go so intensely that it is manifest that their continuing in school will be of little profit. They rebel against school and have force enough to make their rebellion successful. After all, the authority of the school is in its attractiveness. If the children once they reach their teens do not like school there is no power in the home to keep them at it. So it becomes apparent that this closed circuit of common school education needs to be charged with a current of attractiveness.

Now let us come to this question of industrial education from another angle, that of the requirements which a society makes of its members. After all any society is its members. The weakness of any one member means so much weakness in the society. The poverty, or incompetence, or ferocity of any member or class of members of a society is a hurt and danger to the society. "A nation cannot exist half slave and half free." In an earlier article we reflected that it cannot exist half starved and half fed. Let us add the further reflection that it cannot exist half educated and half uneducated If any considerable body of the citizens of a nation are unfit "to perform justly, skillfully and magnanimously all the offices, both private and public, of peace and war" that nation is in peril.

One of the chief causes of poverty is lack of education. The ignorant, unskillful, ineffective man or woman, spending futile days in a weary and desperate scramble for mere animal existence, is overthrown by the first adversity. Comes an illness, comes a new piece of machinery replacing the one he tended, comes hard times and he and his are down and out, and an enemy of society is in the making. The incompetence of his school training is a direct cause of this economic tragedy. He should have been taught how to make something of his life and he was not. He learned a little about reading and writing, but he did not learn how to live as a producer, as a consumer, and as a citizen.

Consequent upon the recognition of this condition there has grown up a demand for vocational training. The schools are to replace the apprenticeships which have gone with the advent of the factory system. In former days coat-making was a trade. A boy learned, during years to make a coat, and he could make a whole coat himself. Now, in the New York factories, 39 different people are employed in making a coat. Each one makes one thirty-ninth of a coat. The area of each ones employment has narrowed tremendously. Any day a new machine may cut that 39 down to 38, or enlarge it to 40. In either case an employee loses possibility of finding work at the only employment he has facility in. For skill he has been replaced by facility. Hence it is pleaded, we should teach boys in school how to make all parts of the coat and multiply their industrial security by 39.

Everybody can see the wisdom and value of that. But one feels, at the same time that the process of education had not been much transformed. Milton's ideal is still very far off. The boy who can make a whole coat when he leaves school is indeed likely to be a better citizen for that knowledge but yet not much of a citizen after all, We need something a little different from and much larger than vocational training. That is why I have chosen another title for this article and called it Industrial Education.

Education should include manual training, for the hand and the eye require to be taught, and the natural mode of learning is through activity.

That is the reason why an old-fashioned farm was an excellent industrial school, and many who were trained on it sit in the high places of the earth to-day. But the manual training should be applied in such a way as to serve the nation not the mere production of goods. As merely vocational training it is apt to sentence the pupil to servitude. It becomes the implement by which a class is kept down. Whereas one of the greatest needs is that the stock of talent which nature distributes capriciously enough, but without the slightest regard to riches or social position, should not perish for lack of a chance. It is so for the matter of infant mortality, and it is so for this matter of industrial education. We want no peasants in Canada. The storm signals are up in the labor world. The volume and intensity of unrest, the brooding discontent, the sense of wrong and injury which vast masses of workers feel, may break out with us, as likely as anywhere else, into violence. The root of the peril lies in the ignorance, irresponsibility and jealousy of the workers, fomented by a similar and antagonistic state of mind in the employing class, and the remedy is not to be found in a stricter servitude. There is plenty of food in the world, the problem being to distribute it. And there is plenty of goodwill in the world, the problem being to release it.

Therefore the common school education of the better time coming will keep steadily in view the large needs of the child who goes to no other school. In the precious six years, of extraordinary mental activity in the child, such things as these will be done: the whole child will be trained, eye and hand as well as memory; the functions of play in making manhood will be recognized, and both classroom and schoolyard brought under its power; definite account will be taken of the physiological difference of the sexes; such subjects as hygiene, domestic science, business practice and the handling of tools will be taught in such a way as to form a flexible variety of habits rather than to produce certain technical skills; the capacity to make a wise choice between occupations when leaving school will be kept steadily in view; there will be much attention paid to ethical discipline, that reverence, courtesy, self-control, the sense of fair-play and co-operation, and the special virtues of citizenship may be developed; in short, the object will be to produce an adaptable and competent human being, fit for parenthood, home-making, self-support and the fulfilment of social duties.—(Journal of Commerce.)

BIG PACIFIC COAST PULP CONSOLIDATION

Plans are on foot to form a pulp and paper combination out of the Ocean Falls, Crown Paper of Portland, Quatsino Pulp. Ocean Falls, owned by British capitalists, is now closed down. San Francisco capitalists propose to guarantee 50 per cent. of the Ocean Falls bonds and will put up $3,000,000 for a paper plant. London shareholders having agreed, Mr. I. Hamilton Benn, M.P., is on his way to execute the agreement.

A branch of the Grand Trunk will shortly pierce the wilderness which Mr. van Dykes' lumberjacks are now preparing to invade. A conservative estimate places the probable yield of his latest purchase at 600,000 cords of pulp wood.

MIMEOGRAPH PAPER.

Reproductions obtained by means of mineographs are characterised by the use of a paper coated or impregnated with a special preparation and perforated by means of a point or under the impact of the types of the typewriter. In order to obtain a reproduction of the writing, ink is pressed through the perforations with aid of an inking roll.

Papers sold for this purpose usually have several inconveniences. They are generally brittle and easily torn, hence cracks result, which cause spots in the prints. Besides the hardness of the surface makes it difficult to reproduce different kinds of hand writing and to trace drawings, etc. Finally the number of copies obtainable is very limited.

The substance used for the coating consists of a mixture of hydro-carbons of the fatty series with certain proportions of ozokerite, oleine and palmitin. As an example the following composition may be used:

1250 parts of saturated hydro-carbons of the series:
$C^n H^{2(nx1)}$ from $C^{17} H^{36}$ to $C^{23} H^{48}$
55 parts of ozokerite
32.5 " " oleine $C^3 H^5 (C^{18} H^{33} O^2)^3$
12.5 " " palmitine $C^2 H^5 (C^{16} H^{31} O^2)^3$

Carrier for the coating is a light cellulose paper, as pure and homogenous as possible and weighing about 12 grams per square metre. This carrier or support is placed on a metal plate, heated to about 110°C. The coating is first melted and then painted over the surface with a soft sponge or flannel, etc. The operation is done on the opposite side to the one, on which the tracings or writings are to be made. The molten coating penetrates the pores of the cellulose by dialysis, it becomes incorporated in a complete and uniform manner and comes afterwards in contact with the heated plate, which effects a perfect glazing of that side of the sheet.

The coating thus prepared makes it possible to obtain fine continuous lines. Even the printing of very numerous copies does not hurt the paper, which does not crack, even if carelessly treated.

THE SICILIAN SULPHUR INDUSTRY.

The situation in the sulphur industry has completely changed during the last 10 years. The world's consumption is now about 850,000 tons of which only 350,000 are produced in Sicily.

The sulphur mines there, formerly numbering over 800, are now only about 300, and the number of laborers employed has decreased to 17,846 from over 40,000 and it looks, as if the production was still decreasing.

Sicilian labourers cannot now live on a salary of two liras, equal to forty cents, as before and a great number of them emigrate. The sulphur must now be taken from greater depths, which further increases the costs of production. These difficulties are steadily increasing, which make it impossible for the production to keep up previous figures.

The stock of sulphur on hand in Sicily is now on account of this 200,000 tons less than two years ago, and Sicily at present disposes of only a stock corresponding to the normal sale. The Sicilian export nowadays covers only 41% of the world's consumption, and if the sulphur mines in Louisiana had not vastly increased their output the price for sulphur would have risen exceedingly. The price has, in fact, not been increased for a long time.

THE BRITISH WOOD PULP ASSOCIATION ANNUAL MEETING

Canadian Message Received with Much Enthusiasm

(From our London Representative.)

ON THE 26th November the annual meeting of the British Wood Pulp Association was held in London and in the evening a sumptuous banquet was given. The latter function may truly be said to have been a Canadian night for the Scandinavian and English pulp men, as the guests of honor were Mr. Pelletier, Agent-General for Quebec, and Mr. Howard, Agent-General for Nova Scotia, and to crown all a most interesting message was read from the Canadian Pulp and Paper Association, which was received with the greatest enthusiasm and an order was made on the suggestion of the President (Mr. Edward Lloyd) that the kindly sentiments contained in it be at once acknowledged.

In the morning the annual meeting was held, the chair being occupied by Mr. L. P. Andrews (Chairman of the executive committee). The report for the past year had a reference to the contract note which states: "Your committee regrets that it has not been able to bring this matter to a conclusion. It will be remembered that immediately after the last meeting an unofficial conference of members of the consenting Associations was held at which the Scandinavian members showed how difficult it was for their Association to abandon the cancellation clause. The members of the British Paper Makers' Association considered that the force majeure clause at present drafted might possibly lead to malpractices on the part of some of the sellers and it was suggested that the Scandinavian Association should submit some proposal that would protect the buyers against such a possibility. The Scandinavian therefore suggested the addition of the following to the force majeure clause:—'Any dispute as to whether the seller is entitled to cancel delivery on account of force majeure, shall be submitted to delegates appointed for such purposes by the Wood Pulp Association concerned in the sellers country, and a certificate issued by these delegates shall constitute full evidence in case of arbitration or otherwise.' Your Committee also submitted an addition to the force majeure clause to cover the British Paper Makers' objection. This was accepted by the Scandinavian Associations but the sub-committee of the British Paper Makers Association appointed to deal with the matter wrote: 'The alteration from postponement to cancellation is under any conditions unnecessary and undesirable and again solicit the Scandinavian Associations to give further consideration to this matter, with a view of maintaining the old conditions which worked so well for so many years. The Scandinavians replied to this by again fully stating their case in favor of cancellation and by sending copies of both English and French Counsel's opinion on the subject." Since then correspondence took place with the British Paper Makers' Association and no reply can be got from that body on the matter. In the meantime the Scandinavian Associations will only recognize the Contract Form with the cancellation clause in it. The meeting on November 26 fully discussed the matter and it was pointed out that the Canadian Pulp and Paper Association, so far as it was concerned, was not willing to accept a contract form drawn up by a papermaker. Therefore on the resolution of Mr. Albert E. Reed it was decided not to take any further action until the British Paper Makers had sent their decision on the matter but meantime the secretary was asked to write and draw their attention to the subject. The trouble over this contract note might be illustrated as follows:—In 1907 there was a 3 months lock-out at pulp mills in Norway and the Hafslund Sulfitfabrik gave notice to customers that they found themselves compelled to cancel three months deliveries on contracts. The Hafslund Mill had at that time been purchased by the Kellner-Partington Pulp & Paper Co. and the demand for cancellation it is alleged emanated from England. Hafslund Sulfitfabrik wrote: " we intend to write off the contracts . . . viz 25 per cent. of the quantity contracted for . . ." Later they wrote " . . . we note the remarks made by your lawyers, but from a business point of view we regret we cannot agree with the remarks made. We beg to inform you that we have already sold our entire production for next year before the lock-out commenced, and if you insist upon having the quantity now in question delivered wherever are we to get same from? Our other customers next year must also have their pulp delivered and you will see the impossibility of our being able to comply with your wishes. Commenting on this case Mr. L. P. Andrews says: "The contracts under which the pulp makers in this case desired to cancel a portion of their contracts contained the postponement clause, and it did not appear to me nor to my legal advisers that the sellers were under such circumstances entitled to cancel any portion of the contract. The buyers took the same view and the case ultimately went to arbitration. One of the arbitrators, Mr. T. Y. Nuttall, was firmly of opinion that in spite of the postponement clause the exigencies of the case necessitated the cancellation desired by the seller. The arbitration was finally decided by the umpire, a London barrister, and went against the sellers. You will also note that the Kellner-Partington Co. found it necessary to cancel portions of all their contracts in consequence of the force majeure which occurred in 1907, and that all customers acquiesced. Possibly their contract conditions may have differed from those of the Hafslund contracts, but the salient fact is that cancellation was considered to be the only solution of the difficulty which had arisen." This about sums up the position under the contract note.

When the meeting was over the Association gave their annual banquet at night. There was a ten course dinner and some of the finest of old wines. The whole affair was a magnificent one and the Lord Mayor of London attended accompanied by the Sheriffs of the City. All the speeches were interesting and some most humorous. When dinner was over the President asked the company to rise and drink the health of His Majesty King George V. The band played the National Anthem and seats were resumed. Once more the President was seen to rise up between the Agents-Generals of Quebec and Nova Scotia and there was a great outburst of applause. The President said: "Gentlemen, before we go on with our toast list I want to read to you a very interesting and kindly message which has arrived from our friends the Canadian Pulp & Paper Association. It is as follows: 'We desire to extend to you our very best wishes for the success of the annual meeting of the British Wood Pulp Association with the hope that its meetings may be interesting and instructive, and in the promotion of the highest interests of the trade. (Signed). H. T. Meldrum, Secretary-Treasurer.' (Loud Applause). I would suggest to you gentlemen, continued the President, that a letter be sent from the British Wood Pulp Association acknowledging this kind letter from our friends in Canada and heartily reciprocating their very kind wishes." Several voices cried "yes" and again applause broke out. This message no doubt has helped to consolidate the good feelings British pulp and paper men hold for all Canadians. The toast list was then gone on with. It included the health of the Paper Trade, the health of the Pulp Trade, the health of the Lord Mayor and "Our Guests." The latter toast was responded to by the chairman of the London Chamber of Commerce and the Agents-General of Quebec and Nova Scotia. The Quebec Agent-General dealt with the vast resources of timber and forests the province had and he added: "It is for associations like yours to come out and help the province to develop our country. In the early days I have been told that the logs were burnt, but now thank God we have railroads and other means to help us to dispose of them. Science and education have also come to our aid and the lumberman is asked to see that everything is put in order." Mr. Pelletier concluded by warning the British pulp men that the American capitalists had their agents at work in Quebec looking after the forests and the principal water powers with a view to eventually becoming owners of them. The Agent-General for Nova Scotia said his portion of Canada was being developed, but what they at present lacked in quantity they fully made up in quality.

OTTAWA LUMBER MILLS CLOSED

The comparative absence of snow in the Ottawa Valley has delayed work in the woods to a considerable extent. Most of the lumber mills at Ottawa are now closed down but that portion of their staffs who generally go to swell the number of men in the camps was held back about two weeks later than usual. Now that snow has come men and teams are being sent up every day as a big cut both of lumber and pulpwood is expected this year.

The charter of the Sault Ste. Marie Pulp and Paper Company, Limited, which is now part of the Lake Superior Paper Co. has been surrendered.

Ocean Falls Bondholders Agree to New Scheme

From our London Representative.)

The bondholders of the Ocean Falls Company, Ltd., were present at a meeting convened in London on November 18th for the purpose of considering a scheme, arising out of the proposals of a committee of the bondholders, for the purpose of making an arrangement. Mr. J. G. Flowerden Lowson was elected to preside over the proceedings, and there was a quorum of £300.000 of the Debenture or bondholders represented. The committee was originally appointed to confer in regard to negotiations pending respecting arrangements for the realization of the property and Mr. J. H. Benn, M.P., now explained that in the earlier part of the summer the general opinion was that the bondholders would have to agree to find the money to equip and operate the company by means of a prior lien. They hoped to dispose of the property to other parties or to arrange for other parties to find the money that was necessary to equip and develop the property upon fair and reasonable terms. A new report on the property was then decided upon so as to back up the Receiver in negotiations for the disposal of it. Mr. Crosby, the general superintendent of the Royal Bank of Canada in the West, had made reports and he then visited New York, Montreal, Chicago, and other places and eventually made a provisional arrangement with parties in San Francisco which the bondholders were now asked to approve. The proposed buyers of the property were Messrs. Herbert and Mortimer Fleishhacker, the latter the president of the Anglo-London and Paris National Bank of San Francisco and Mr. William Pierce Johnson, the director of the Bank of California. These three gentlemen were the principal shareholders and really controlled the three great paper companies on the Pacific Coast. Mr. Benn added that the proposed new company would have the advantage of the co-operation of the three existing companies and the Fleishhackers and Mr. Johnson were men of wealth in California. The Fleishhackers said they intended to carry through the business on the terms laid down, but there was no legal method to bindthem to do this until the bondholders had approved the terms and the committee had made a formal contract. The committee had discovered that the Fleishhacker and Johnson group had the whole trade ofthe Pacific Coast in their hands at the present time and a great number of the paper users on the coast were bound up to the firm for from 3 to 5 years in connection with the purchase of paper. Mr. Benn concluded: "Whilst from the bondholders' point of view I think the offer a good one and acceptable under the circumstances, it is at the same time very disappointing and will create considerable opposition in other quarters. That is to say, the unsecured creditors in common stock will get nothing and neither of course will the old shareholders of the Ocean Falls Company, some of whom, like myself, had a very high opinion of the real and legitimate value of the property, but in the situation in which we are placed, the bondholders had possession of the property and it was their right to get their money first." Mr. C. E. Gabain pointed out that the amount concerned was $2.000.000 and for that sum the bondholders had the first lien on the whole property, which in the prospectus was stated to be worth several million dollars more than the mortgage. They were now asked to give up half their lien and take the new mortgage for half the amount. Sir William Bassett said if the purchasers were going to spend $3,000,000 that was a proposition that was well worth considering, but if they were going to spend $1,000,000 then it was a matter about which a large number of bondholders would say that they did not care. Another point: "What security would they have as bondholders in the event of the proposed paper mill not being built? Were they going to have a right to revert to their property in the event of these gentlemen not carrying out their bargain?" Mr. Davids said that the fact that these gentlemen proposed to erect a paper mill was to his mind a clear indication that there was no market for the pulp and that a market had to be made up by the equipment of a mill. One more question was asked by Mr. Gabain "'I want to know," he said, "who are the people who are going to get the $2,000,000 out of the $3,000,000?" Mr. Benn replied: "I think the fact that Messrs. Fleishhacker and Johnson have guaranteed the bonds they are going to appropriate and to spend this extra money and sell the remainder of the bonds in order to raise the money necessary for the building of a paper mill, is sufficient guarantee itself, that they will do the very best to make this a successful company." The scheme was then put to the meeting and declared passed.

Spanish River Offers Term Notes

The contractors of the £300,000 six per cent. second mortgage short term Notes of the Spanish River Pulp and Paper Mills, Ltd., which is stated to have a capital of $20,000,000, issued the prospectus on November 20 and, according to the financial papers in London "they show some boldness in putting them on the market, especially in view of the recent severe fall in the quotation of the preference shares." The company needs money to liquidate its floating indebtedness and to replenish its exchequer with funds for working purposes. The sale of the short term notes should, therefore, enable the company to considerably improve its financial position. The price of the notes is fixed at 96 per cent. and apparently they were sold to the contractors at 95. It is stated that £109,520 had been taken firm when the prospectus was issued. The notes are redeemable as to half on September 1, 1915 and as to the other half a year later, but holders will have the right to convert at maturity into seven per cent. cumulative participating preference shares, and on doing so will receive a cash premium of 5 per cent. The estimated earnings based on actual figures for August, September and October 1913 of the Espanola and Sturgeon Falls Mills on their production of 64,500 tons of paper will be about $575,000. Added to this estimated sale of lumber, company's hotel revenue, stores, etc., $100,000, revenue from shareholding in Lake Superior Paper Co. $90,000, makes a total of $765,000. From this is to be deducted interest on 6 per cent. bonds ($228,120); sinking fund of 3 per cent. on total issue of $4,000,000, bonds of which $198,000 since redeemed $120,000, which leaves a surplus of $416,880, whilst the amount required for interest on the present issue of £300,000 6 per cent. notes is $90,000. The notes are secured by deed of trust and mortgage in favour of the National Trust Co., Ltd., Toronto, as trustees for the noteholders, constituting the notes a fixed and or floating charge on all of the assets of the company, real and personal, present and future, subject only to the existing prior charges. The earnings of the Spanish River Company are recorded as $110,221.63 for the 12 months ended June 30, 1913; $54,645.15 for six months ending June 30, 1912 (Mills were undergoing repairs and alterations at this time); $267,935.19 for the year ending December 31, 1911 and $207,899.93 for the year ending December 31, 1910. The directors were given as W. E. Stavert, President; G. H. Mead, (Mead Pulp and Paper Co., Ohio); F. A. Szarvasy (London); H. E. Talbot (Mead Pulp and Paper Co.); J. F. Taylor (Lake Superior Corporation, Ltd.); T. H. Watson, vice-president and managing director, Toronto; W. K. Whigham (London.).

FORESTRY FACTS.

There are more than one hundred tree species found in Canada, of which only thirty are conifers. Yet these latter constitute Canada's chief timber wealth. Of these coniferous trees, or evergreens, spruce easily takes first place, constituting over one-third of the lumber and three-quarters of the pulpwood cut in Canada in 1912. Four of the five species of spruce are of commercial importance, and at least two of these five are found in every province of the Dominion.

This summer an expert soil analyst was engaged by the Forestry Branch of the Dominion Government to substantiate the findings of the forests surveyors in cases where there was any doubt as to the non-agricultural character of forest areas to be reserved.

A novel use has been found for the waste liquor from sulphit pulp mills, as a binder for cinders and similar materials used in the construction of tennis courts.

That sawdust and other mill waste can be profitably manufactured into briquettes for fuel is evident from the fact that a large lumber company in British Columbia is erecting a $50,000 plant, which will have a daily output of about thirty tons of such briquettes. They will sell for about five dollars a ton at the mill.

During September and October, 1912, several hundred bushels of pine cones were gathered by the Forest Rangers on Dominion Forest Reserves. This work is often made easy by the squirrels, which store large quantities of green cones in holes for use in the winter months. The Rangers spread out the cones in some dry place, and, when the scales open, the seeds are shaken out, and the following spring the best of them are planted in the forest nurseries.

Paper cannon are manufactured by the Krupp works, Germany, for infantry use in rough country. They are so light that a soldier can easily carry one and yet the resistance is greater than that of a metal field-piece of the same calibre.

The lock-gates and sills of the Panama Canal are all made from "Greenheart," a large tree found in the dense jungles of northern South America, especially British Guiana. The wood will bear, without crushing, a weight of six tons to the square inch, and will remain sound one hundred years under water, being immune to the attacks of the salt-water teredo. A single log costs several hundred dollars.

LIGNOSE

A New Method to Manufacture Brown Wood-Pulp for Paper and Cardboard Industries

By K. WEISHAN, Vienna

A NEW method to prepare ground wood pulp from wood by means of squeezing rolls, patented in Austria by Rudolf Kron under No. 54166, is worth special attention among the many new experiments to manufacture brown ground wood pulp with elimination of the power consuming grinding process.

The grinding of steamed wood for the manufacture of wood pulp is a combined squeezing and tearing process, in which most of the mechanical work used is transformed into tearing. A loss is here unavoidable on account of the wood fibres being ground too short, the so-called dead-grinding; this depends upon the grinding process itself, which is not simply a separating but also a regrinding or refining process.

Kron's new method depends upon, that the steamed wood or woody substances are conducted through specially constructed roll apparatuses crosswise to the fibres, and are thus disassociated into soft strings of fibres on account of the pressure. In the same manner in which the old stone mills in the manufacture of meal at present have been nearly completely eliminated by pairs of rolls, so have these also found a corresponding use in the manufacture of wood pulp. Such an energetic pressing and dissassociating action without damage to the strength of the fibres is impossible to obtain in such a simple manner with any other machine.

The steamed wood is disintegrated into fibre strings through the pressing action of the pairs of rolls, arranged over each other, and its brittleness and stiffness is thus completely broken, so that a perfectly soft fibre pulp results from the previously hard wood.

It is only remarkable, that the idea of using a number of rolls arranged after each other in a suitable manner as a disintegrating device for the disassociating of wood into its fibrous constituents for the preparing of paper pulp has not long ago been applied.

The number of squeezing rolls required for the mechanical disassociation of wood according to Kron's new method, is combined in one machine, which has been called "softener." The rolls are made of best chilled cast steel and can be set at varying distances from each other. The substance is fed continuously to the topmost pair of rolls by means of some suitable device and leaves the bottom rolls as completely soft fibre felt, which is then transferred to an edgerunner. From here it is emptied directly into containers with some stirring device, from whence it is conducted to screening and refining machines in the same manner as ground wood pulp, and is afterwards taken up on wet machines.

The advantages of this method in comparison with the old method of grinding are as follows:

(1) **Lower power consumption.**—According to the common grinding method 6 to 8 H.P. gross are required for 100 kilograms of dry wood pulp, but according to Kron's new method only 3 to 4 H.P. gross per 100 kg. Consequently a twice as high production is obtainable through the new methods with the same water or steam power, as is possible with the common grinding method.

(2) **Better quality of the pulp.**—Microscopical researches and experiments on the strength of lignose-pulp have given following results:

The lignose fibres are better isolated than the brown wood pulp fibres. Lignose contains only very few bundles of fibres, and these are much smaller than for brown ground wood pulp. The lignose fibres seem to be better separated from the surrounding incrusting substances than the brown wood pulp fibres. In the microscope the lignose fibres show a certain similarity with the cellulose fibres; they have become soft and are easily bent and consequently felt together better than the stiff brown wood pulp fibres.

The high percentage of short fibres in common brown wood pulp, the length of which as an average is about one sixteenth of an inch, makes it evident, that the fibres pass through the process of manufacture of the new squeezing method to a large extent without being reduced in length and have consequently been submitted to a considerably milder treatment.

Lignose fibres had a length of 4.4 mm. and cellulose fibres a length of 3.8 mm. Some lignose papers gave the following values, when tested for strength: With a weight of 154 grms. per square metre, 1935 metres tearing length.

With a weight of 131 grms. per square metre, 1875 metres tearing length.

Consequently an average of about 1900 metres tearing length.

Papers made of brown, ground wood pulp gave the following figures:

With a weight of 167 grms per square metre, 1534 metres tearing length.

With a weight of 135 grms. per square metre, 1316 metres tearing length.

As an average about 1425 metres tearing length.

The tearing length of papers made from lignose is therefore consequently about 34% higher than for papers made of brown ground wood pulp.

(3) **Higher yield.**—The great amount of very short fibres in brown ground wood pulp, when regarded in the microscope, makes it evident, that the loss through "dead-grinding" must be more considerable, while the lignose shows a good preserved fibre of the original length; a loss through "dead-grinding" is eliminated in the new method according to Kron's system. The yield of brown ground wood pulp is 15 to 25 per cent. lower than for white pulp, but lignose has about the same yield as white pulp.

(4) **Greater independence of the quality of the different kinds of wood used.**—It is desirable in the usual grinding process to grind only first class wood, but with the new method small round and split pieces, especially refuse from saw mills, may be used to the same advantage as higher grades.

(5) **Lower manufacturing costs.**—The "softener" together with edgerunner in Kron's system does the grinding. The "softener" is built for a production of 5 tons dry pulp per 24 hours and then

requires a power of about 30 H.P. The installation and upkeep of this simple machine together with some edgerunners is hardly to be compared with a high-power grinder.

How close are not the results of the grinding method depending on the quality and structure of the grinding stone and its sharpening! What expenses are not caused by the buying and upkeep of the stones, especially when a high pressure is being used! On the other side the squeezing rolls in Kron's system, manufactured from best hard cast steel last for many years and don't require in the least to have their surface looked after. Also the labor required for manipulating is minimal and is limited to watching the pairs of rolls, so that they always remain at the correct distance from each other.

The saving, which results from the elimination of the stone and all the expenses for its upkeep and drive, is considerable as compared with the expenses for upkeep and labor for a "softener" with edgerunners. To this must be added the elimination of the danger of a possible bursting of the stone, which has become more and more imminent on account of the steady increase of the pressure used, and which may nowadays be expected more often than was formerly the case.

After what now has been stated it seems, as if Kron's method is destined to be substituted for the old method of grinding everywhere, where the production of brown ground wood pulp has to be increased to up to double the previous quantity with the already existing water power, and also in case it is desired to obtain a stronger pulp.

(The samples of cardboards, shown made from wood treated according to the lignose method, were of the same quality as first-class hand machine made cardboards. It is not improbable that the new system will cause a revolution in the manufacture of brown ground wood pulp as its advantages seem to make it preferable to wood pulp ground in the usual manner. The microscopical photographs of fibres obtained by this method and shown to the editor show, that they are not in the least damaged and consequently are able to give the paper made from them a maximum of strength. Samples of such papers have been shown to the editor. Kron's invention is of considerable interest to the paper and cardboard industries.)

MR. BRIGGS RETIRES.

A. A. Briggs, for the past eight years superintendent of the Kinleith Paper Mills, St. Catharines, Ont., intends retiring at the end of 1913 and will take a protracted rest. Mr. Briggs has been in the paper manufacturing lines all his life and previous to going to St. Catharines was with the Canada Paper Co., at Windsor Mills, Que., for some years. He also worked in a number of important plants on the other side.

The Brompton Pulp & Paper Company, East Angus, Quebec, last week took an order from the Beaver Companies, Buffalo, N.Y., for 500 tons of Kraft Wrapping. The Beaver Companies have been using heavy screening wrappings before, but figuring out the basis of weight, they find that money can be saved on freight rates and that it is considerably cheaper to wrap their board in kraft.

IMPORTS AND DUTIES UNDER EXISTING TARIFF ACT.

Washington, D.C. Nov. 29, 1913.

Secretary McAdoo of the Treasury Department, in response to a Senate resolution, has transmitted to the President of the Senate a copy of the estimated receipts from customs for the year 1915, as prepared by experts of the Treasury Department. The figures are as follows:

Schedule:	Value of Imports.	Revenue	Average ad valorem Per ct.
A.	$67,493,804	$12,423,043	18.41
B.	28,204,904	9,313,857	33.02
C.	78,465,920	13,561,985	17.28
D	28,049,500	893,375	3.18
E.	111,865,725	40,196,405	35.93
F.	30,595,300	26,001,650	84.99
G	146,927,625	20,626,490	14.04
H	21,899,566	18,937,140	86.47
I.	33,856,500	10,288,973	30.39
J.	62,346,030	10,942,773	17.55
K	85,745,000	13,158,750	15.34
L.	28,110,600	12,367,735	43.99
M	25,518,300	3,065,580	12.01
N	179,707,350	57,365,982	31.92

NOTE.—The above imports include all articles dutiable under the act of 1909, the conference report or both. Schedule M is Pulp and Paper.

TRADE ENQUIRIES.

The Dominion Government Trade and Commerce reports contain the following trade enquiries. Readers of the "Pulp and Paper Magazine" may obtain the names of enquirers by writing to the Department of Trade and Commerce and stating the number of the enquiry.

2087. **Wrapping paper.**—Samples and prices are asked for by a South African importer.

2089. **Paper bags.**—Samples and prices are asked for by a South African merchant.

2096. **Wrapping paper.**—A South African merchant asks for samples and prices on Canadian wrapping paper.

2097. **Paper bags.**—Inquiry is made by a South African importer for samples and prices on Canadian made paper bags.

2107. **Wrapping paper.**—Samples and prices are requested by an East London firm.

2108. **Paper bags.**—A South African merchant asks for samples and prices on Canadian made paper bags.

2118. **Lumber, all kinds.**—An East London firm asks for prices on all kinds of Canadian lumber.

2128. **Wrapping paper.**—Samples and prices are asked by for a South African importer.

2129. **Paper bags.**—Samples and prices are asked for by an East London merchant.

2130. **Lumber, all kinds.**—A South African importer asks for prices on all kinds of Canadian lumber.

Mr. W. A. Abybarg, formerly forestry engineer for the Laurentide Company, Limited, at Grande Mere and later woods manager for St. George Lumber Company, Newfoundland, has gone with the James McLaren Co., Ltd., Buckingham, as assistant woods manager in charge of about 100 contractors on the Lever River.

DIRT

Every papermaker is continually worried by various descriptions of Dirt, causing specks, and other flaws in the paper made.

The higher the grade of paper made the cleaner it must be, and in lower grades the cleaner it is, the more easily will it be sold.

It Pays to Keep Out Dirt.

And it is best to do so, as early in the process as possible.

Pulp makers should realize this quite as much as papermakers, and continually wash for cleaner pulp. Sources of dirt in a papermill are innumerable, and it is sometimes a hard proposition to spot the source of some particular species of speck, which suddenly begins to show up in the finished sheet. Some of the common sources of dirt are to be found, in faulty design of the paper mill; inadequate machinery, and arrangements for cleaning the raw materials used. The use of unfiltered, or imperfectly filtered water; insufficient pains taken in the straining of loadings, size, alum and colors.

Then pipes and spouts, for conveying stuff and water, are often erected in such a way that it is impossible to quickly, and thoroughly clean them.

The re-use of white water is often a serious source of dirt, as unless it is carefully collected, it will certainly be contaminated, by oil and grease from the paper machine.

Certainly the dirt question is a serious matter, and every paper manufacturer, of whatever grade, ought to be a trained hunter after the undesired particles.

He wants to use common sense, supplemented by a good pocket magnifyer and on occasion a good microscope. In a short article one cannot do more than touch on a few of the most common sources of trouble. Some very usual faults of paper mill design, are having the rag loft above the beating mill, having the steam boilers so placed that coal dust and ashes can be blown or carried into the mill by the in-draught of cold air. Faulty ventilators which let in dust, which settles in the interior, and when a strong breeze comes along, and shakes the roof, down it comes.

Then roofs are rarely properly made. Beater rooms, and machine rooms, should have roofs so constructed that they can be thoroughly washed down, internally, with the fire hose, at regular intervals.

Machines should have a house to themselves, and have nothing overhead, except the roof.

As to arrangements for cleansing materials. The machinery required varies to a large extent according to the material to be handled, and differs so considerably that each mill, must have that which is suited for the special materials used.

Broadly the thing is, to have the right machinery for your purpose, and when you have it, see that it is used to advantage.

Unfiltered or imperfectly filtered water gives a lot of trouble. If obtainable, spring, or well water is generally the most pure, but as that is not always to be had, many mills have to fall back on river, or brook water, which in flood times especially is utterly unsuitable. Many mills using river water have large reservoirs full of clear water reserved for use in time of flood. Even then the water must be filtered before use, as soot and dust often settle down on the reservoir and contaminate the water, in addition to this, there is generally more or less, vegetable growth in the form of water weeds.

A mill once came under the writer's observation which for years was notorious for black specks in their paper. At this mill a low quality of coal was used with a strong forced draught. Small cinders and coal dust were driven up the chimney, and fell on the pond in showers, and so got into the paper. This trouble was cured, cheaply and effectively by the use of excelsior or wood wool filters.

Another mill, also troubled in the same way, pumped their washing water out of the mill race in all weathers and states of the river.

A third mill had a so-called filter, beautifully roofed in, but underneath the roof !!! The filter consisted of a sunk tank with dry stone sides, built against soil, the sides were partly fallen in, and the whole place was pretty well filled with about 20 years' collection of mud (it had never been cleaned out since being built) the only filter in it was a dry stone wall across the middle of the tank. The suction pipe from water pump went quite to the bottom of the tank; and to make sure of the mud being well stirred up, the overflow from the mill cistern was returned to the "filter" close alongside the suction pump. Cases like these are pretty glaring, and are cited to show that it is worth while looking into such things.

Coming now to the question of loading. Perhaps China Clay is the most commonly used. It always contains dirt, in the form of sand, and small lots of coal, and stone. There are many ways of straining this, but the simplest, and most effective the writer has come across, is a half round trough with a six inch slot along the bottom opening into a box the full length of the trough. Into this box the foreign materials fall, and as a plug, or sluice, is arranged at each end of this box, it is easily hosed out after each mixing. The unstrained clay is admitted into the trough, diluted with water to a standard strength, and in the trough, the straining is done by an ordinary drum washer, run at slow speed, and covered with 90 mesh wire. The delivery from the drum washer is best run into a tank, fitted with agitator, from which the clay can be drawn as required to measuring tanks at beaters. This strainer costs little to keep up, is easily cleaned, and does its work well. Size is best strained through an ordinary wire strainer, about 70 mesh, and then through flannel. Alum is troublesome to strain owing to its acidity. The writer believes in using a good quality and in straining through flannel.

Colors should always be passed through a fine meshed wire strainer, or through silk, if for the highest grades.

ALEX. ANNANDALE.

The Brunet Falls Manufacturing Co., of Cornell, Wis., have recently been placed in the hand of a receiver. It will be reorganized and the new plant opened during the winter. We had occasion to comment on the very bad situation of this mill recently and now find our comments have come true. The plant is being extended and remodelled and mistakes in the original design are being corrected. Armour & Co. of Chciago are the financial backers of the firm now. They manufacture steamed ground wood board.

Norway and Denmark

Report of Trade Commissioner.

(Mr. C. E. SONTUM.)

Christiania, Norway, Nov. 3.

Nearly all mechanical wood-pulp mills in the Lowlands have already been stopped; the mills at Frederikshald, Kragero, Arendal and Riser, are quite idle; at Larwik the output is only about 20 per cent. and at the Skien mills the supply of water has been reduced by 50 per cent. Of the inland mills those at Andely, Mago etc., already report a reduction, and they are expected to be quite stoppe by the end of the year unless copious rains come very soon. The Randsfjord lake is falling and at the Aadalen river the mills are already running with reduced power. The level of water in the Spirilien lake from which this river flows is only a trifle higher than in 1911. In the Trondhjem district the supply of water had commenced to give out, but heavy rains have recently fallen in this locality.

It is learned that the dry weather extends to the north of Sweden and also that stocks of mechanical pulp are small in that district. In the south of Norway stocks are so small that one dealer experienced some difficulty in getting together a parcel of 3,000 tons. The price was low, but a few weeks ago he would have been able easily to get the pulp at the figure which he bid. It is evident that there is likely to be experienced one of those surprisingly sudden changes of the entire situation which have so frequently occurred in the history of mechanical pulp.

Low Water in Swedish Rivers.

Mechanical Pulp. The warm and dry weather which we have had for a considerable time seems now to influence water conditions and also prices. The grinding mills in the north of Sweden are preparing for a reduced output during the winter, and Norway reports that the water in rivers and lakes is rapidly diminishing, and that it is uncommonly low for this time of the year. As to the prices we have heard that during the last days buyers have raised their offers for prompt delivery with 27-54 cents per ton.

During the last few days there have been some local showers, but as the ground is very dry, it will take several days of steady rain to improve the present condition.

Chemical Pulp. The statistical position of the cellulose market is very favorable for sellers, but on account of the unfavorable conditions which are now prevailing in the paper industry, the demand from paper manufacturers is still small. The paper manufacturers still buy only to meet the most urgent demand if sellers cannot be induced to extend deliveries over four to five years. In England as well as in France paper manufacturers take a very large interest in contracts for 1915-18, which ought to prove that they expect a better market and better prices for such delivery.

New Pulp Mills Proposed.

The Korsnæs sawmill, situated near the city of Gefle, Sweden, has resolved to build a new sulphite mill with a capacity of 20,000 tons per year. This company has already another pulp mill. The capital of this company is about $3,000,000.

A new pulp mill is being built in the neighborhood of Hjerpen, Sweden, with a capacity of 30,000 tons of moist pulp per year.

At Stenjær, Norway, there is projected a mill with a yearly production of 15,000 tons moist mechanical.

A New Tanning Material.

At the Chemical Experimental Station in the city of Drammen, Norway, during the last year extensive experiments have been made to make use systematically of the different stuffs to be found in the sulphate lye. This, as will be known, contains nearly 50 per cent. of the mass of the wood, as only the cellulose is utilized by the mills, while all of the balance is carried out in the rivers. The sulphate lye contains among many other ingredients also tanning stuffs, that are damaging to the leather, and must be extracted. First the acids and the large amount of lime, which the lye contains must be extracted and besides also some iron. Finally an extract must be made containing as much of the stuffs as possible that produce leather tanning stuffs and sugar-holding stuffs.

After very extensive experiments, the experimental station has succeeded in extracting every appearance of lime, which is absolutely necessary, as even as little as 0.2 per cent. of lime will cause the leather to get a greyish color. In modern tanning more than one tanning stuff is used, and the next thing was therefore to find out with what tanning stuff the new product worked the best. After further experiment it was found that the new tanning stuff was especially adapted for underleathers and sole leathers in connection with extract of quebracho, which is obtained from the quebracho tree, growing in Argentine. Of this extract Norway alone imported nearly $300,000 per year. When the quebracho extract is used alone, it discharges a great deal of insoluble substances, which can not penetrate the leather. By mixing with the new tanning stuff extracted from the sulphate lye, these substances become soluble and thus can be taken up by the leather, and thereby raw streaks are avoided.

The new tanning stuff possesses the qualification of filling the pores of the leather in such a manner that it cannot later be washed out, and the leather becomes firm and waterproof. Samples have been sent by the inventors to large tanneries in England, Germany and Austria and the trials have everywhere run off very satisfactory.

Export from Sweden of Pulp and Pasteboard.

The Norwegian Consul General at Stockholm, Sweden, reports the following regarding the export from Sweden of pulp and pasteboard for the first half year of 1913, as compared with the previous two years:

	1911 tons	1912 tons	1913 tons
Mechanical, moist. .	63,903	80,461	90,992
Mechanical dry.........	19,389	22,197	26,171
Chemical, moist.........	18,075	20,631	25,549
Chemical, dry..........	195,898	217,603	233,378
Pasteboard.............	85,334	74,503	12,207

Norway's Import and Export of Pulp and Paper

(First Half of 1913)

Import:	Jan.-July, 1913 lbs.
Writing and drawing paper............	943,617
Printing papers, all kinds..............	1,366,226
Pasteboard and wrapping paper..... .	2,438,871

Building and roofing paper	3,244,353
Sundry kinds of paper	910,181
Export:	
Wood pulp, dry	202,606
Wood pulp, moist	5,920,481
Cellulose, dry	2,653,398
Cellulose, moist	20,891
Printing paper	1,181,197
Wrapping paper	1,023,572
Wall paper	2,200
Pasteboard	56,262
Envelopes	102,126

Ottawa Notes

(Special to the Pulp and Paper Magazine.)
Ottawa, Ont., Dec. 11th.

Lands Adjacent to Water Power

The Dominion Government has taken a somewhat important step for the pulp and paper trade by its action, announced a week ago, in making reservation of all lands adjacent to waterpowers on all rivers flowing through Crown lands. This will make a decided difference to paper manufacturers who desire to lease Crown lands hereafter as naturally a number of these streams flow through timber reserves and pulpwood lands. It does not follow from the Government's action, however, that the lessees of Dominion lands cannot make use of their waterpowers but under the new order of things such sources of energy will apparently be let on short terms only so that they may be renewed from time to time at higher prices if thought advisable by the Government. Dr. W. J. Roche, Minister of the Interior explained the Government's step as follows: "We find that the waterpower possibilities from Manitoba to the Pacific Coast are tremendous and we mean to take care of these for the people of Canada. If the Western provinces decide to go in for a hydro-electric policy like Ontario then the power will be ready for them. Even if it is found advisable to allow some of these waterpowers to be developed by private corporations they will not be alienated."

Western Freight Rates

That the existing rates on paper in Western Canada should be brought down to the level of Eastern ones, was one of the demands made by Mr. Isaac Pitblado, K.C., counsel for the Winnipeg Board of Trade, in his closing argument in the Western rate case before the Railway Commission this week. The inquiry, which has been in progress for the last three years, came to an end to-day.

It is in many respects the greatest inquiry into freight rates ever conducted by the Railway Commission or by any similar body. Since the case opened in 1911 counsel for the Dominion Government and the Governments of Saskatchewan and Alberta and British Columbia as well as for the Winnipeg Board of Trade, have been contending that rates in the West were discriminatory as compared with Eastern tariffs and were unreasonably high. Especially is this urged in the prairie provinces though it is admitted that in the mountainous regions of British Columbia, where railway operating costs are high, rates should be fairly high too. The case has been of great interest to the paper trade since the West, like every rapidly growing country, supplies a splendid market for news print, building and wrapping paper, on all of which as well as forest products generally, a reduction is asked.

The railways have argued in defence that operating costs are higher in the West, that there is less density of traffic and that rates are quite reasonable, for instance, as compared with railroads in the Western States. To prove this they give a series of comparisons, among them being comparisons of rates on paper in Western Canada and Western United States, to show that the former were more reasonable. Judgment in the case is not expected for months.

Trent River

That either the Dominion or the Province of Ontario acquire properties along the Trent watershed in Ontario in order to protect the timber growth thereon is the recommendation which will be contained in a report to be made by the Commission of Conservation to the Dominion Government shortly. The Commission is apprehensive lest extensive timber cutting and general forest depletion in the district will render useless and new Trent Valley Canal by depriving it of its water supply. Lumbering operations have been widely carried on there for years and are still in progress. They are now threatening the watershed supplying the canal and hence the Commission's recommendations.

That there is no chance of the St. Lawrence Pulp and Paper Company the local concern which went into voluntary liquidation last spring, being revived has been learned by your correspondent. The assets of the company, which mainly consisted of the plant itself, were turned over to Mr. J. O'Brien, of Renfrew. Mr. O'Brien has had the plant dismantled of its machinery which is now stored in this city waiting a purchaser and the mill has been closed up.

The new ground wood mill of the E. B. Eddy Company which was only recently completed, is now turning out from 25 to 30 tons of pulp per day. This is less than twenty-five per cent. of its total operating capacity but the latter will not be reached till the end of next month or in February.

Ocean Freight Rates

Considerable interest has been taken by the trade in the report made public over a week ago, of Mr. H. L. Drayton, chairman of the Railway Commission, who returned some time ago from England after looking into the question of ocean freight rates between this country and Great Britain. Mr. Drayton was charged with authority to negotiate toward the appointment of an international joint commission for the regulation of ocean freight rates, which are admitted to be high. He reports that the British authorities, however, do not wish to take further action in the matter since it was one of the duties delegated to the Dominion Trade Commission appointed in 1912. This body will shortly sit in Canada to take evidence in regard to ocean freight rates. No doubt pulp and paper men interested in the export trade to Great Britain will be among those to testify in regard to the unreasonably rapid rise in rates on all forest products during the last decade.

Another grievance of the shipper which Mr. Drayton points out is that while for westward ocean movement the different steamship lines issue minimum rates well in advance, for the eastward movement to Great Britain weekly lists only are issued from time to time so that it may be entirely impossible for the Canadian paper manufacturer to know what his rates may be in a month's time. Mr. Drayton recommends that standard maximum rates be fixed by an independent authority.

Tariff Talk.

Tariff talk at the capital gives rise to speculation as to whether there is any possibility of a change in the duties on forest products including pulp and paper. Although Sir Wilfrid Laurier, leader of the Liberal Opposition, has so far come out only in favor of a reduction in the rates on food products it is announced that the Western and more radical wing of his party favors an increase in the British preference and a lowering of some of the schedules governing manufacturers. The fact that the West, being a growing country without a large timber supply of its own except in British Columbia, needs both lumber and paper, might result in a plea for the reduction of tariffs on these commodities to allow of their freer import but so far there is nothing definite to be said in this regard.

Cartage Service.

Acting on the request of the Montreal Board of Trade, the Railway Commission will probably set an early date for a hearing of matters arising out of the cancellation of cartage service by the Canadian railways on January 1. As this date approaches shippers everywhere in Canada find themselves not only without provision made for doing their own cartage but in considerable confusion as to whether the shipper or the railway is to sort and handle the freight under the new order of things. Boards of trade in different cities are sending petitions protesting against the cancellation of cartage but the Railway Commission, to which they are being addressed, has announced that it can do nothing further.

A FORESTRY BRANCH FOR NEW BRUNSWICK.

In view of New Brunswick's extensive areas of pulp wood lands it is of interest and significance that a forestry branch is shortly to be established in the Crown Lands Department of that province, according to a statement made by Clyde Leavitt, chief forester of the Commission of Conservation, Ottawa. The branch when constituted is to be put in charge of a technically trained forester. New Brunswick Crown lands comprise an area of over 10,000 square miles, and return an annual revenue of over half a million dollars to the provincial treasury.

The chief reason for the establishment of a forestry branch is the necessity of having some scientifically organized body to take charge of the work embodied in a resolution passed by the New Brunswick Legislature last session that a survey, examination and classification of the Crown land areas of the province be made. The report is to cover the character and quality of the lumber; quantity of timber and reproductive capablilities, accessibility, cost of logging and stream driving. The existing staff of cruisers and scalers has been charged with the carrying out of a lot of the practical work, but for a study of reproduction, experts will be necessary.

ARABIANS IN PAPER MAKING.

Although the fact is generally known that the Arabs transmitted from India to Europe, through Arabia, the figures with which we do our sums, it is not so well known that they are also to be thanked for paper. At various times the scholars of different countries have tried definitely to determine the real discoverer of paper in the eleventh century. From time immemorial something answering modern paper was used in China, where it was manufactured from silk.

About the middle of the seventh century of our era there seems to have been established in Arabia a manufactory of paper, and 50 years later the way was discovered to make it from cotton instead of from silk, silk being a rare commodity outside of China at that time and cotton relatively plentiful.

In the reign of Henry II of France a Greek scholar was sent to Paris to arange systematically a catalog of antique manuscripts in the Royal Library, and a notation in his hand speaks of what was then known as "paper" as originating in Damascus.

The later invention of making paper from flax, linen or hemp has been attributed equally to Italy and Germany, but there is evidence that it existed prior to the fourteenth century.

CELLULOSE EXPERT FOR INDIA.

We notice that the Government of India are consistently pursuing their policy of exploiting the natural products of the country. The Forest Research Department has been exceedingly active during the last ten years in this direction, having devoted much attention to the examination of natural products both in the vegetable and animal kingdoms. They have accumulated much valuable information and their reports are certainly monuments of the careful attention which has been given to this question.

The Forest Research Department some six years ago commissioned Mr. R. W. Sindall to visit India for the purpose of making a report as to the use of Bamboo for paper making, and followed up this pioneer work by appointing Mr. Wm. Raitt as specialist for the investigation of cellulose and cellulose products. The results of the investigations carried on by Mr. Raitt have been published from time to time, and quite recently we had the pleasure of calling attention to the elaborate report from the pen of Mr. R. S. Pearson.

The Government of India is to be congratulated in continuing this work, and we now notice that Mr. Wm. Raitt has been given a permanent appointment directly under the auspices of the Government of India, as Consulting Cellulose Export. The scope of his work will thus be considerably enlarged, and we hope to see in the very near future some practical commercial results being obtained.

The value of applied chemistry is thus once more demonstrated, and in due course the researches of the chemist when translated into commercial operations will amply justify the claim that all commercial industries owe their origin to science.

We shall follow the further policy of the Government in this direction with considerable interest.

UNITED STATES NOTES

(Special to the Pulp and Paper Magazine.)

The Sandy Hill Iron and Brass Works, of Hudson Falls, N.Y., are building one of the largest paper machines ever constructed by the Company. The machine is to be 300 feet long and 112 feet in width, and will weigh between five and six hundred tons. When completed it will be shipped to the Beaver Company at Thorold, Ont. The Iron and Brass Works are taking great pride in the machine they are building. It is expected that the machine will be completed within a week.

* * * *

The announcement is made by the Eagle Lodge of Paper Makers, at Holyoke, Mass., that every effort will be used to enroll non-members in the lodge before Jan. 1st, after which time the union members will decline to work with papermakers who are not affiliated with Eagle Lodge. The initiation fee will be raised after the first of the year the charge now being nominal. It is reported that the above conclusions were reached by a unanimous vote in a largely attended meeting.

* * * *

The American Paper Box Co., of Grand Rapids, Mich., is to build a new factory building on Godfrey avenue, adjoining the American Box Board Paper mill, to be ready June 1, next. In addition to the paper mill, already occupying the five-acre site on Godfrey Avenue, the same company operate the American Corrugating company plant, also a subsidiary. The new factory will be better equipped in every way to turn out its product of paper boxes, the raw material coming from the board mill. The paper box factory and the corrugating plant consume 50 tons of card-board daily, which it turned out by the paper mill. The plants employ 350 men and according to W. A. Jack, general manager. the completion of the new factory will mean employment for over 500 people.

* * * *

Deputy state factory inspectors investigating various manufacturing plants in Pennsylvania, say they found the law relative to the employment of minors has been violated flagrantly. Officers of five big plants, the Jarecki Manufacturing Co., including the Herold Paper Box Co., pleaded guilty to charges brought and each was sentenced to pay $15 and costs. It is claimed they employed children under 14 without proper certificates.

* * * *

William L. Nixon has been appointed general superintendent of the Chemical Paper Manufacturing Company, at Holyoke, Mass., and will assume his new duties on Jan. 1st. Mr. Nixon is well known to paper manufacturers of that section, having for many years been connected with Moore & White of Philadelphia, Pa., who are among the leading builders of paper mill machinery in this country.

* * * *

Among corporations to apply for registration in the state of Maine, during the past fortnight, was The Coniferous Pulp Company, of Biddeford. The incorporators, are John A. Snow, E. K. Snow, of Scarboro; Frank R. Ross, H. H. Goodwin, Joseph Paquin, Jr., of Biddeford. The capital of the new company is placed at $500,000.

* * * *

The Carpenter-O'Brien Lumber Company, according to a report from Jacksonville, Fla., has been conducting experiments looking to the manufacture of paper pulp from yellow pine, and from the statement of the head of the company, S. J. Carpenter, it appears they have succeeded in getting a fine paper pulp. However, there is no intention of manufacturing this article of commerce at present, says Mr. Carpenter. The Carpenter-O'Brien Company is capitalized at $1,200,000, and the men at the head are well known in the lumber world.

* * * *

For nearly a week Union Bag and Paper preferred stock was quoted at 19 and 25, on the New York Exchange. On Thursday of last week, it sold at 24, the next day at 27 and on Saturday it ranged around 30. Two weeks ago it was at its low record price of 18½. It is not understood that the fortunes of the company have changed a great deal meanwhile, but that the better administration following stockholders, complaints of last year may reveal more satisfactory net earnings than the year ending January 31, 1913.

* * * *

The debris has been cleared away at the old rag mill of the American Writing Paper Company in Franklin, O., where a disastrous boiler explosion occurred a fortnight ago. The scene of the explosion was a block or more distant from the main mill, and it was considered fortunate that more serious consequences did not follow. The boiler was used for making hot water only, having been out of commission for any other purpose for some time, though pronounced safe.

* * *

Registry has been allowed by the Commissioner of Patents, at Washington, D.C. to M. Gottesman & Son, 154 Nassau Street, New York, wood pulp importers for the marks "N.A." "V.B." "B.B.," "B.C. and N.S." These brands appear on the various grades of Strong, Mitscherlich and Easy Bleaching Sulphite and the well-known "N.S." Kraft Sulphate wood pulps imported exclusively by Messrs. Gottesman & Son.

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Reports come from California that the Federal Government has approved a plan for the establishment of a pulp mill in the Sierras of Fresco County, and negotiations are now being carried on with Eastern capitalists looking to the establishment of this mill. It is said that this matter has been under investigation by the forestry service for some time and looking into the possibilities for the making of paper pulp. Their reports were favorable to the establishment of a pulp mill, and it is said that Eastern people are now making plans to establish one.

C. L. Newcomb, Jr., has been appointed to succeed G. B. Turner as Western representative of the Goulds Manufacturing Company, Seneca Falls, N.Y. Mr. Newcomb's headquarters will be at 12 Chamber of Commerce, Denver, Col., and he will look after the company's interest in the Northwestern territories. Previous to this connection Mr. Newcomb has had several years' experience in the pump business, and he is well known to the trade in the territory he will travel.

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The Hudson River Box Company of Cohoes, N.Y has purchased a large tract of land in that city, to erect an addition to the box factory of the company. The land has a frontage of 150 feet, and is 350 feet deep.

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In order to obtain a practical experience in the chemistry of pulp and paper manufacturing, six students who are taking the new course at the University of Maine, spent the greater part of their Thanksgiving vocation in neighboring paper and pulp mills. These students also became employees of the Eastern Manufacturing Company and the Penobscot Fiber Co., for several days during the past week, when they were under the direction of the general foreman. They worked ten hours each day. Most of their time was spent in the Sulphate liquor and digester rooms. It is the intention of the chemistry department to make this new course as practical as possible and this practical work will enable the department to plan for extension of the courses in pulp and paper chemistry.

* * * *

Charles Rollins Remington, widely known paper mill man of northern New York, died about 2p. m. Monday. Dec. 1, at the family home, 271 Clinton St., Watertown, following an illness of several months. Death was due to kidney trouble, from which he had long been a sufferer, although not until recently did his condition become such that he was unable to care for his business interests. His age was 78 years. He is survived by his widow and one daughter, Mrs. Geo B. Kemp, of Watertown. His son, Chas. H. Remington, died in March, 1911.

KICK AT HIGH FREIGHT RATES.

(Special to the Pulp and Paper Magazine.)

Watertown, N.Y. Dec. 10, 1913.

Strenuous protests against the action of the Canadian Railroads in advancing the rate by about 11 per cent. on pulp wood shipments from Canada into the United States have been raised by many of the paper concerns of this vicinity, as well as by quite a few paper companies throughout the States. A complaint against this action on the part of the Canadian Pacific, Grand Trunk and Canadian Northern Railroads and their Amercian connections on this side of the border has been filed with the Interstate Commission at Washington.

The local paper companies joining in the vigorous attack against this decision are: The DeGrasse Paper Company, of Pyrites, N.Y.; The Carthage Sulphite Pulp and Paper Company, of Carthage, N.Y.; The Remington-Martin Company, with head offices in this city, and mills in Raymondville and at Norwood, and in St. Lawrence County, and the St. Regis Paper Company, of this city, and the Mountain Lumber Co., of Plattsburgh, N.Y.

The complaint is also signed by the International Paper Company, of New York; the Union Bag & Paper Co., of New York City; Charlemagne & Lac Oureau Lumber Co.; Gres Falls Company and St. Gabriel Lumber Co., Ltd., of Montreal; West Virginia Pulp & Paper Co., Cliff Paper Co., Champion Paper Co., of New York City and Finch Pruyn & Co., of Glens Falls, N.Y.

The effect of the increased rates, it is alleged, will be to increase the cost of news print paper 56 cents a ton, and it is charged that its purpose is to develop the pulp wood business of Canada at the expense of pulp and paper mills of the United States, and to indirectly impose an export tax on Canadian Wood.

It is estimated that the proposed rates will apply to approximately 100,000 cords of pulp wood annually, costing 11 per cent. more to the consuming mill than before.

TO OBTAIN SULPHUR FROM TOP OF MT. POPOCATAPETL.

News has just been received from Mexico City to the effect that the British syndicate headed by Mr. F. S. Pearson, of London and New York, which owns the electric traction system there, is going ahead with its plans for a railroad to the summit of Popocatepetl volcano, sixty miles distant from the Mexican capital While it is proposed to establish a pleasure resort on the top of this mountain the chief purpose is to take out the million of tons of sulphur that has accumulated in the crater. The syndicate has obtained control of Popocatepetl from General Casper Sanchez Ochoa. It is 18,000 feet to the summit.

A few years ago a commission of mining experts appointed by the Mexican government, investigated the sulphur deposit contained in the crater, and reported that not only is the deposit the largest in the world, but that it is absolutely pure. The quantity was estimated at 1,480,000 tons, with a depth of 500 feet, as the annual increase is about 1,480,000, the amount there now, is of course much greater than the original estimate. The average price of sulphur is $20 gold a ton. It is said that the crater sulphur can be profitably sold at $10.

The mining of sulphur in the crater of Popocatepetl has been carried on intermittently for 400 years ever since the conquest by Cortez. Great quantities have been brought out on the backs of Mexicans.

The daring of some of these native sulphur miners is remarkable. They do not hesitate to go to the very rim of the hole which comes up through the incrusted deposit of sulphur, and which leads far down to the ever-seething cauldron of the volcano. The crater is about 2,000 feet in diameter. In most places the walls of the crater are perpendicular. The descent from the rim of the crater to the top of the sulphur deposit is a sheer 580 feet. The natives reach the deposit by means of rope ladders. The temperature is comfortably warm. On the outside an area of snow and ice extends far down the side of the mountain.

It has been more than a hundred years since Ppoocatepetl ("Smoking Mountain") had a violent eruption. It still ejects gases from the orifice that leads down into its burning pit, but this little evidence that it is still alive is lightly regarded by those who would despoil the crater of its sulphur treasure.

PAPER MANUFACTURE IN AUSTRIA.

Notes from a Recent Trip.

The author lately made a trip through Austria in order to introduce the manufacture of "imitation parchment" into the mills belonging to the Leykam-Josephsthal Co. one of the most important paper manufacturing concerns of that country. "Imitation parchment" or "grease proof paper" s made of sulphite cellulose without using any chemicals.

The Leykam-Josephsthal Co. is a big concern, owning six paper mills, all over the country, a sulphite mill near Venice, a straw pulp mill in Hungary and besides printing and other paper consuming plants in Vienna.

The mill near Venice has also three paper machines, and is situated on a small river. The company uses spruce obtained from Gallicia in long ogs, unusually free from knots and closely grained. The wood is hand-barked and cut in the usual way, but the chips are sorted by hand, as the wages paid are so low, that manual labor can be used extensively.

The chips were then transported on a canvas conveyor about six feet wide, and about forty to fifty women on each side were picking out knots and chips of irregular size. A foreman was standing n an elevated place in order to see that they did not talk or neglect the work. It was evident, that union and labor organizations had not yet been started there.

The author was told, that both women and men were beaten; they were mostly Slavs, Croates and other types of people, used to every kind of treatment.

On account of the method of treating the chips the pulp became of first quality and was free from the black spots which otherwise often occur. The ast sorting out of the bleached pulp, which was taken up on wet-machines and then sent to the company's four other paper mills, was also done by women. Each sheet was held over a box, which was lighted from the inside by means of an electric amp, and the remaining knots were picked out with a kind of flat, pointed needle.

The working conditions of the mills are very different from ours. The mills are located on small rivers, often at some distance from the nearest village and therefore most employers, as engineers, chemists, bookkeepers and foremen, have their meals together in a big dining hall. There the most peculiar mixture of dialects could be heard. They were mostly young men, reserve officers, and had apparently not forgotten their military training. One circumstance was most obvious: their imperfect geographical knowledge. Once they wanted to know who the new fellow was, who now had been with them for a fortnight. When answered, that he was from Norway, one of them asked: "Hort das auch dem Kaiser zu?"

This humor is very natural, when it is tried to find out, of how many different nations the great Austrian empire consists, of which even people with a good education only have a rather vague idea.

The Austrians are very particular about titles, and in their company were often heard: "Herr Chemist," "Herr Papiertechniker," etc., and only seldom, "Herr Ingenieur." This was explained so, that in order to have right to the title of "Ingenieur" it is necessary to have graduated from a technical high school or to have been leader of some important water power development or mill construction work. General technical education gives only right to the denomination "Techniker." Consequently the gentlemen around the table were "Papier-tecknikers," "Chemists," etc.

FORESTRY FACTS.

Stopping ground-fires in the forest by trenching can now be easily and quickly done by planting a long string of dynamite cartridges in advance of the fire, at intervals of two feet. When these are exploded simultaneously by means of an electric current, the result is a ditch four feet wide and two feet deep, which effectually stops the fire.

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The ghostly glimmering of poplar chips and stumps, frequently observed in Canadian forests at night, is due to a fungus known as the 'shoe-string' fungus, which is commonly found on large-sized poplars throughout Canada. It causes a yellowish-white rot which detracts much from the value of this wood. The presence of this fungus is externally indicated by the mush-room-like fruiting bodies which cluster around the base of the trees. Infected trees should, when possible be cut down and used for fire-wood.

* * * *

Probably the strongest timber in the world is a species of eucalyptus, known as yate, which grows to a considerable size in Australia. Its average tensile strength is 24,000 pounds per square inch; in other words a bar of this wood one inch square will (in theory, at least— hold up a weight of twelve tons. This is equal to good cast iron. No similar tests of Canadian woods have as yet been made, but at the Forest Products Laboratories, recently established by the Dominion Government at McGill University, it is proposed to investigate the mechanical properties of native tree-species, with a view of determining on a scientific basis, their utility for structural work.

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There are now twenty-seven technically trained foresters in the permanent employ of the Dominion Forestry Branch.

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The library of the Forestry Branch, Ottawa, contains over 1,200 volumes and more than 4.500 photographs of forestry work in Canada and elsewhere.

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There are seven spruces in the United States. Four are confined to the west; two to the east; while one, white spruce, has a continent-wide distribution.

* * * *

Sawmill waste of Douglas fir, of which an enormous quantity is found in the western forests, is being used to make paper pulp by a mill at Marshfield, Oregon.

Experiments with various chemical extinguishers for fighting forest fires have not been very successful. The unlimited supply of oxygen in the open, forest officers say, tends to neutralize the effect of the chemicals.

NEW PULP MILL FOR OREGON.

Acting Secretary of Agriculture B. T. Galloway has just given a permit to James Lindsey of Portland, Oregon, for the construction and operation of a power plant in Mill Creek, Douglas County, Oregon, within the boundaries of the Siuslaw national forest.

Mr. Lindsey intends to transmit the power obtained from this hydro-electric plant a distance of 18 miles to Reedsport, Oregon, where it will be used in the manufacture of pulp. There are now at Reedsport a fish cannery, a cold storage creamery, and a warehouse, but when the Southern Pacific railroad completes the extension upon which it is now at work, Lindsey and others who are associated with him in the development of Reedsport believe that the town will become a valuable manufacturing and shipping center. Besides the power plant and pulp mill, other industries are contemplated by the men interested in the town. They claim to see possibilities of an excellent future based upon resources, power and transportation facilities.

NEW BOOK ON LOGGING.

A new work on logging by R. C. Bryant F.E., M.A., Prof. of lumbering and Yale University is just off the press of John Wiley & Sons. It is gotten up in creditable shape, on good paper, with excellent type and many good illustrations. It deals first with the principles and general methods of operation in United States and has been prepared for text book use in forest schools. Theimportant features of operation and innumerable variations are dealt with under six main sub-divisions.

Part. 1 deals with logging in general. Part 2 refers to "preparing logs for transport." Part 3 deals with land transport and Part 4 with water transport. In part 5 an excellent summary is given of logging methods in specific regions, and in part 6 the variable appendix also contains in very handy form a number of the most important log rules and tables of cubic contents. Much other valuable information is included in the appendix and a well arranged index is published at the end of the book. The book will make a strong appeal to all who are interested in the logging industry. The Renouf Publishing Company, 25 McGill College Avenue, Montreal, are the distributors of this book for the Dominion.

TEXTILE FIBRES.

The third edition rewritten of the above book by J. Merritt Matthews has just come off the press of John Wiley & Sons. It deals with the textile fibres of raw material to finished products in their systemized relations to Scientific knowledge and to our greatest industries. He points out that as yet there is very little known concerning the chemical constituency of the fibre and the manner in which the varying chemical conditions of bleaching and dyeing and other chemical treatment effect the composition and properties of these constituencies. It deals thoroughly with the subject of chemical properties of cellulose and mercerizing cotton artificial silk. The various sources of textiles fibres include ligno-cellulose and textile yarns from wood pulp. The book is thorough and complete and should be a valuable addition to information for every one interested in technicalities of cellulose. The Renouf Publishing Company, 25 McGill College Avenue, Montreal, are the distributors.

UTILIZATION OF WASTE WOOD.

The utilizing of waste wood as slab edgings and the like for the manufacture of ground wood pulp, also known under mechanical pulp, is the significant feature of a new machine invented and protected by Mr. Leo Schlick, M.E., 164 Bay Street, Toronto.

The above mentioned gentleman being an expert and specialist in the design of pulp machinery, has succeeded after exhaustive investigations and tests in designing a machine capable of converting waste wood into a good and strong fibre pulp, suitable for paper and board making purposes.

It is obvious that cheap white paper forms an important item in modern culture, as same is exclusively manufactured from wood, all precautions being taken to eliminate the waste of raw material.

It is known that slabs, edgings and waste wood in general consist of good useful fibres, which if properly treated in a special machine will give the same excellent fibres as the log itself.

It is to be mentioned that the new apparatus is based on well-known scientific principles and not on fantastic ideas.

The grinding process is maintained whilst the machine itself is a clever combination of automatic charging of the pockets (thus eliminating labor) and a proper device ensuring the manufacture of strong and long mechanical pulp.

The cost of manufactuirng pulp out of waste wood is as 1 to 2 compared with pulp of logs. The machine is fully protected by a number of pending patents.

The inventor states that the design of the machine is merely an engineering problem as every engine or ordinary machine..

Preparations are being made to push this machine vigorously and to build large units pulping all the waste of a lumber concern.

The new board mill of the Hinde & Daucher Paper Co., which has been erected in Toronto, will start operations next week.

The report of the Crown Land Department of New Brunswick for the year ending October 31st will show larger receipts than during any previous fiscal year. Nearly $252,000 has already been received in cash bonuses in connection with new Crown timber land licenses. Between $1,600 and $1,700 has been received for Crown land sinking fund. The territorial revenue receipts will be over $50,000.

PULP AND PAPER NEWS

The Pulp Mill of the Dryden Timber and Power , Ltd., has closed down for repairs and addi- ns to machinery. About fifty employees are nporarily laid off, leaving about forty permanent- employed. Mr. J. B. Beveridge, the general nager has just been on a trip to Chicago, Toron- and Montreal. L. B. Bishop, of the mechanical f, has gone to England for three months' va- ion

Great excitement has been caused by the many nours emanating from the Minnesota & Power plant at International Falls. Mr. E. W. Back- the president of the company and lumberman Minneapolis, is well-known throughout lumber paper circles as a man of hasty temper and n action. It seems there is general disagree- nt between John J. Ross, the superintendent of mill, Mr. L. F. Houpt, until recently vice- sident and general manager, and Mr. Backus. result has been that the president has fired his h priced manager and maintains the complete ection of the plant himself. This he should do in case, because if we are correctly informed, a nager for this plant is only a figurehead. Mr. C. Duncan, formerly of the Marathorn Mills, has resigned as was reported in the American trade rnals. He is still to the public at least getting ng satisfactorily with Mr. Backus.

The Northern Construction Company are pro- ing to buy the Sprague Limits on the Quetico serve in Onatrio. They already have a very large l on Rainy Lake with ample boom ground and next enlarge considerably.

The Laurentide have ordered twelve Voith maga- grinders using 1200 H.P. for their new ground od mill at Grande Mere.

Mr. James F. Lanningan, Jr., president and asurer of the Emerson Manufacturing Co., wrence, Mass., died on November 21st, 1913.

The Southam Press have completed the exterior l roof of a new ten-storey addition to their pub- ing premises in Montreal. It will be ready for upancy about February 1st.

The Sulphate Mills of the Dryden Timber and ver Co. will close down for two months for ensive alterations and enlargements. The Bond ders sanctioned an issue of prior lien notes to vide funds for installing additional machinery ng to the failure of the other installation. It expected that this will bring the mill up to esti- ted capacity. $150,000 has been sanctioned of ch $100,000 is available in cash, the remaining ,000 will be available to release this lien. The npany's stock of pulp wood as required for ration. It is expected to open toward the be- ning of March, with this additional capacity ch is absolutely necessary to enable the mill earn profits.

Edward Partington Pulp and Paper Company, l.; capital increased from $950,000 to $5,000,000.

The Powell River Pulp & Paper Company has ured 30,000,000 feet of logs from the Ocean Falls Company, which recently closed down. These logs are being shipped down the coast in the form of large rafts, cigar shaped.

The mill of the Lake Megantic Lumber Company has shut down for the winter, having cut up all their supply of logs. The crew has been distributed to the various camps in the woods.

Navigation on the St. Lawrence River has been officially closed when the last ocean steamer for the season sailed from Montreal, and the last gulf and river report was issued by the Government Signal Service. The buoys in the ship channel are being taken up, and it will no longer be possible for pulp to be shipped by boat from Quebec points. As yet, however, there is no ice whatever upon the river.

The Japanese Government has decided, in order to assist the industry of the country, that new cellulose mills will be free of taxes for the year during which they start up, as well as for the three following years. This applies only to new plant in the cellulose industry.

At the end of last week Hon. Adam Beck was a visitor at the Abitibi Pulp and Paper Company's plant. He purposes looking into the possibilities of power development in the Sudbury district. He was asked by a deputation at Sudbury to develop for that point 35,000 h.p. Mayor Henry, President Black of the Board of Trade, and Messrs. Hall and Wilson constituted the deputation representing Sudbury.

Price Brothers & Co. closed their financial year on November 30th. The financial statement will not be issued for at least a couple of weeks. Though exact figures are not available. It is said that it will show good increases over that of a year ago. Last year profits amounted to $463,716. These profits will be made entirely on the lumber business not in the paper.

The Inland Pulp & Paper Co., Limited, has been granted a charter with a share capital of $200,000 divided into 2,000 shares of one hundred dollars each. The headquarters of the company are at Thorold. Among the powers of the company are to acquire and take over as a going concern the business now carried on in Thorold under the name of the Colonial Wood Products, Limited, and all the rights and contracts held by them as well as the assets; liabilities etc. and to pay for the same in paid up shares of the new company. The Inland Pulp and Paper Co. are also empowered to construct, erect, own and operate mechanical and sulphite pulp mills, paper, card board, paper materials etc., as well as to purchase and acquire water powers, etc.

Several publishing houses in Toronto are going in for new buildings. Hugh C. MacLean, Limited, will erect a six storey brick building at the corner of Charlotte and Adelaide streets to cost $67,000 and the McLean Publishing Co. will put up a five storey brick and stone office building at the front of their present premises on University Avenue to cost $40,000. The Methodist Book and Publishing House have definitely decided to adopt the site at the corner of Queen street west and John street, Toronto, and will erect a five-storey building thereon, with foundations sufficiently strong so that the structure may be extended to ten storey at any time. The five storey addition to Warwick Bros. and Rutter, 401 King street west, has the walls and the roof all completed.

The findings of the recent joint meeting of the Canadian Press Association and the Canadian Press, Limited, in the matter of the proposed increase of second class postal rates were formally presented to the Postmaster General in Ottawa by Presidents H. B. Donley and J. F. MacKay. The deputation were informed by Hon. Dr. Beland that he would carefully consider the matter and submit a memorandum embodying the ideas of the department of what changes should be acceptable and an answer will be given by the two organizations at an early date.

J. Frater Taylor, President of the Lake Superior Corporation, who was recently appointed a director of the Spanish River Pulp and Paper Mills, Limited has resigned on account of pressure of work in connection with the affairs of the Lake Superior Corporation.

A report, which is now in course of preparation by the Commission on Conservation, will recommend that either the Dominion or Ontario government acquire the land ln the Trent Valley canal watershed and protect the forest growth. It is feared that extensive lumbering operations which have been carried on for years and which are still in progress will eventually remove the source of water supply and render useless the canal. It is of fundamental importance that the watershed supplying it be kept intact by preserving the adjacent forest growth. The canal when completed will cost about ten million dollars and unless the watershed is protected this waterway will be of no economic utility to Peterboro', Lindsay, Trenton, Campbellford and other centres.

George Coates, who was so severely injured in the mill of the Lincoln Paper Co. at Merritton a few weeks ago losing both arms as a result of having them drawn into a stack of calenders, and who has a wife and three small children, has been presented with a sum of $2700 by the residents of St. Catharines and Merritton.

Hon. Adam Beck, Minister of Power, whose great work in connection with the Hydro-Electric development is appreciated all over Ontario, was recently tendered a public banquet by the citizens of London, which was attended by five hundred leading residents who presented him with an engrossed address, accompanied by a handsome silver tray and candelabra valued at over a thousand dollars. Mr. Beck will shortly leave on an extended trip to the Old Country. He is an extensive box manufacturer, the interests with which he is identified having large plants in several Ontario cities.

Speaking before the Canadian Club of Timiskaming recently at New Liskeard, Dr. B. E. Fernow, Dean of the Faculty of Forestry of Toronto University, put forth a strong plea for the better classification of the soils of New Ontario. He said that it was desirable to furnish the settler with a land classification which would allow him to select the more easily managed land, or, at least, to know what he may expect when he undertakes to farm the more difficult soils. It was foolish to speak of the whole country as a unit.

There has been a record timber cut in Vancouver and district, the saw mills having cut six hundred and seventy three million feet of timber which exceeds any previous years cut by seventeen million feet.

Hon. P. T. McGrath, who is a member of the Newfoundland Legislative Council and a widely known newspaper man, delivered an address before the Canadian Club in Toronto last week in reference to the attitude of the Island colony toward Canada and the reasons why the Islanders did not desire to join allegiance with the Dominion. He said that Newfoundland was not affected by the financial stringency which was hanging over Canada today and it would surprise Canadianmanufacturers to learn how cheap lumber could be bought on the Island. He added that Newfoundland had in her very centre the greatest pulp mills in the entire world and from these plants much of the paper of Europe was now being taken.

The three-storey brick and concrete stock house of the Kinleith Paper Mills at St. Catharines has been completed. It is a fine structure and will triple the storage capacity of the plant.

Thomas H. van Dyke,of Hereford, Quebec, has bought 25,000 acres of timber land in the Province of Quebec.

By this recent purchase it is estimated that the aggregate land holdings of Mr. van Dyke are now more than 600,000 acres in the United States and Canada. He owns more territory than any other individual in New England or the vast Canadian Province just over the line.

His possessions will yield at least 10,000,000 cords of pulp wood, which will "operate out" at $2.50 per cord net stumpage.

J. A. McAndrew, of Toronto, secretary of the Abitibi Pulp and Paper Co. who has been spending some tmie at Iroquois Falls, says that the contractors, Morrow and Beatty are making fine progress with the work and have about 250 men employed. Lake Abitibi is now frozen over and the company have no difficulty in getting sulpplies into the camps. All the buildings are about completed with the exception of the power house and grinder room which, it is hoped, will be housed in by the first of March. It is fully expected that the plant will be in operation by June next.

The Canada Bread Co. now have three Holden-Morgan bread wrapping machines at work in their bakeries in Winnipeg, Toronto and Montreal, while four other machines have been ordered. The demand for the wrapped loaf is increasing rapidly and Calgary, Winnipeg, Montreal and other bakers have placed orders for wrapping machines. The Holden-Morgan machine which is made in Toronto, is adapted to use any class of paper from the most expensive waxed to a cheap forty pound sulphite sheet. The machine is fed from a roll at one end.

The White Falls Lumber Co., Limited, of Toronto, has been granted a charter. The capital stock is $40,000 and the company are empowered to carry on business as lumber, woodand timber merchants. James Lander and Joseph Spears are among the incorporators of the company.

The Markets

CANADIAN MARKETS.

The market situation is a rather uninteresting problem during the holiday season and usually few changes are witnessed at this time of the year. News mills appear to be well employed, as with the big Christmas editions and the increased advertising pages, the news demand is brisker during December than perhaps any other month. Book, writing and coated paper mills are only fairly busy and orders are rather small, varied and rather irregular necessitating many changes to keep the machines running. The wonder is that prices have held up so well and, from diligent inquiry, it is learned that there has been very little cutting. Jobbing houses report business active this month owing to the demand for all kinds of wrapping papers in order to do up Christmas holiday goods. There have also been several very nice sales of specials. Glazed kraft and other lines are going very well. The market for ground wood is a little firmer and most firms are now holding out for a dollar more at the mill. Several large orders are being taken for sulphite delivery for the coming year and prices remain unchanged. In the rag and paper stock line book stock and white blanks are weaker. There is a fair demand for folded news and over-issues but mixed papers are somewhat easier. Not a great deal is being shipped at present as most mills on the other side, who buy from Canadian dealers, are now taking inventories to ascertain where they stand in the matter of supplies for the coming months.

Paper

News (rolls) $42 to $44, delivered.
News (sheet) $46 to $50, f.o.b., mill
Book papers (carload) No. 3. $3.75 to $4.50
Book paper (ton lots) No. 3, 4c. to 4.50
Book paper (carload) No. 2, 4.25c.
Book paper (tons lots) No. 2, 4.50c. to 5c.
Book papers (carload) No. 1, 4.75c. to 5.25c.
Book papers (ton lots) No. 1, 5.25c. to 5.75c.
Writings, 5c. to 7½c.
Sulphite Bond, 6½c. to 8½c.
Fibre, $3.00 to $3.75
Manila B., $2.50 to $3.25
Manila No. 2, $2.75 to $3.50
Manila No. 1, $3.25 to $4.00
Unglazed Kraft, 3.75 to 4.50
Glazed Kraft, $4.25 to $5.00

Pulp

Ground wood (at mill), $15 to $16
Ground wood, $22 to $24.50, delivered in United States
Sulphite (unbleached), $43 to $45, delivered in Canada
Sulphite (unbleached), $43 to $46, delivered in United States
Sulphite (bleached), $58 to $60, delivered in Canada
Sulphite (bleached), $58 to $62, delivered in United States

Paper Stock

No 1 hard shavings, $1.90
No. 1 soft white shavings, $1.72½
No. 1 Mixed shavings, 55c.
White blanks, 85c. to 87½c.
Ordinary ledger stock, $1.20
Heavy ledger stock, $1.40 to $1.50
No. 1 book stock, 72½c. to 75c.
No 2 book stock, 50c. to 55c.
No. 1 manilla envelope cuttings, $1.15
No. 1 print manillas, 65c. to 67½c.
Folded news, 55c.
Over issues, 57½c.
No. 1 clean mixed paper, 37½c to 40c.
Old white cotton, $2.50 to $2.75
Thirds and blues, $1.30 to $1.32½
No. 1 white shirt cuttings, $5.25 to 5.50
Blue overall cuttings, $3.50 to $3.62½c.
Black overall cuttings, $1.75
Black linings, $1.75
New light flannelettes, $4.60 to $4.75
Ordinary satinets, 75c.
Flock, 90c.
Tailor rags, 65c. to 67½c.

MONTREAL MARKETS.

The chief feature of the Montreal Markets for the past two weeks has been the disposition of news print paper to shift in an undecided way with a general upward tendency. Competition has been withdrawn so that the price is now much stronger around $1.95 at the mill. Job lot business may be obtained slightly below this price. The change in the news print situation is probably due to the American market and possibilities of a war with Mexico. Ground wood has eased off however. The water is now plentiful and all the pulp mills are grinding full capacity. No. 1 ground wood is quoted at about $18.00, while No. 2 can be obtained from $15.00 to $17.00 at the mill. Sulphite is quiet.

Qutations f.o.b. Montreal are:

Book and News Paper

Roll News, $41 to $43 per ton for large orders; $45 to $50 per ton for small orders.
Ream News, $45 to $47 per ton for large orders; $50 to $75 per ton for small orders.
No. 1 Book, 5¼c. to 6c. per lb.
No. 2 Book, S.C., $4.60 to $4.75 in large quantities; $4.75 to $5.50 in small quantities.
No. 3 Book M.F., $4.10 to $4.25 in large quantities; $4.40 to $4.50 in small quantities.

Mostly all paper houses allow a discount of 2 to 3% for payment. in 30 days.

Wrappings.

Grey Brown, per 100 lbs., car lots, $2.35; 5 tons, $2.45; 2 tons, $2.55; 1 ton, $2.65; less, $2.75.
Red Brown, car lots, $2.85; 5 tons, $2.95; 2 tons, $3.05; 1 ton, $3.15 less, $3.25.

B. Manilla, car lots, $2.85; 5 tons, $2.95; 2 tons, $3.05, 1 ton, $3.15, less; $3.25

No. 2 Manilla, car lots, $3.10; 5 tons, $3.20; 2 tons, $3.30; 1 ton, $3.40; less, $3.50.

No. 1 Manilla, car lots, $3.35; 5 tons, $3.45, 2 tons, $3.55, 1 ton, $3.65; less, $3.75.

Fibre, car lots, $3.35; 5 tons, $3.45; 2 tons, $3.55; 1 tons, $3.65; less, $3.75.

Kraft, 3¼c. to 4½c.

Most of the manufacturers are quoting 10% less than the above prices to the jobbing trade on the cheaper lines of wrapping.

Pulp.

Sulphite easy bleaching, $43 to $45 per ton.
News quality, $41 to $42 per ton.
Bleached sulphite, $54 to $59 per ton.
Kraft pulp, $3.60 to $4.00.
Ground woods, No. 1, $15 to $16.00.
Ground wood, No. 2, $22 to $24, delivered United States.

THE BRITISH MARKETS.

(Special to the Pulp and Paper Magazine).

London, Nov. 29, 1913.

There is a little more briskness to report in the British paper industry, and employment at the various mills and works shows improvement. Orders are now becoming increased and most of the important mill men state that they are fairly well occupied, but would like to see business passing on a larger scale. Nearly all the mills have enough orders on their books to keep the machinery going without reverting to short time, and so long as this states of affairs continues it cannot be said that the trade is much depressed. The book-binders are still on strike and this dispute is preventing a greater outlet being opened for the consumption of fine printings, coated paper and other book papers. News-print is in good demand, while kraft papers, owing to the proximity of the Christmas trade, are enjoying a good sale. Other classes of paper are in fair request.

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The mechanical pulp market continues firm with prices hardening. There is not to say a great deal of business being done, orders being only confined to small parcels. Enquiries, however, are getting more numerous. Prices are about as follows, c.i.f., London, Manchester etc.:

Pine, 50% moist unwrapped (prompt). .	$9.96 to $10.68
Pine, dry (prompt)......	20.40 to 22.60

About $1 extra may be put on for forward delivery.

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The Chemical pulp market is not active, but prices are firming up. The same story comes from Scandinavia and France and Germany. Mill men in England do not feel disposed to do much business on the present basis of prices. Large shipments on contract continue to arrive at British ports, so that mills are not badly off for the moment. Prices are about as follows, c.i.f., London, Manchester, etc.

Bleached Sulphite..............	$52.40 to $57.60
Easy bleaching sulphite(No. 1)....	47.00 to 51.50
"News" or strong quality........	38.00 to 40.00
Soda, unbleached (No. 1)........	40.00 to 40.80
Soda, unbleached (storng).......	37.50 to 48.00
Soda, kraft......................	38.40 to 48.00

Owing to the high prices of Esparto that are ruling business is limited and sellers remain very firm. Wastepapers are easier in prices and large consignments are leaving for the States. Rags suitable for papermaking, ropes, bagging, etc., are low in stocks but dealers report that prices are not likely to be advanced yet a while. Meantime prices are firm.

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The tone of chemical markets is good and enquiries for papermaking materials are more numerous. Prices are unchanged—indeed Caustic Soda is reduced in price and the chemical papers state that Crosfield and Sons, Ltd., of Warrington, England, have decided to make a considerable reduction in their prices for liquid caustic soda for next year's delivery. The rosin and sizing markets are lifeless and prices unchanged.

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China Clay contracts for next year are being made at 48 cents to 72 cents above last year's prices. There is a good demand. Gypsum, mineral white, Patent Hardening and other fillings are all dearer on contracts for 1914 delivery.

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Generally speaking, raw materials and fillings, from a paper manufacturer's view in England, are costing him more than was the experience this time in 1912.

NEW YORK MARKETS.

(Special to the Pulp and Paper Magazine.)

New York, December 10, 1913.

Though reports continue to come from abroad that chemical pulp manufacturers are very firm in their views, it is quite evident that there is some discrepancy for quite a few local importers are not averse to selling certain lines at very low figures. In fact sales have been reported during the past fortnight at figures unheard of for many years. The leading importers claim that this underselling is done by certain factors who are working on a very small commission basis. Nevertheless, competition is very keen, and though no change is made in the market quotations given herewith, these figures are no criterion of what pulp can be actually bought for if one is in the market. It is, however, a conceded fact that the supply of all grades of chemical pulp, both in this country and in Europe, is in excess of the immediate demand, and some of the paper mills are actually making counter offers. Several of the domestic producers say they are fully convinced that business generally will be resumed after the first of the year which will materially affect the paper mills and in turn cause them to buy in heavier supplies.

Ground wood pulp continues to move well on contracts but new business is quiet and uninteresting. Consumers that do their own grinding are operating their machines on practically a full basis and have accordingly laid away a little surplus stocks The extreme cold, however, of the past few days has caused a slight curtailment in operations, due to anchor ice. If this condition continues, the price of ground wood will in all probability rebound to the strong position reported throughout the fall. Grinders are very cautious and are looking towards the future more than at the present, and many of them appear more anxious to hold stocks indefinitely rather than sell at the price now prevailing. Equally as many, however, are anxious to turn their supplies into ready cash so that the close of the year will show a better cash record on their books.

The cardboard manufacturers are apparently keeping the packers of the lower grades of waste papers in a state of turmoil. Though no direct evidence can be obtained, it is quite evident that they have formulated their own prices, and will either buy at their own prices, or nothing at all. In consequence there has been nothing left for the packers to do but lower their prices. Quotation for No. 1 White News is now confirmed at $1.20 to $1.25, Coarse issues at 60c. to 65c.; strictly folded news at 50c. to 55c.; No. 1 mixed papers at 35c. to 40c. and common papers at 25c. to 30c. The situation is still weak and packers are more inclined to dispose of their products at present figures than to hold same and probably witness a further decline. The better grades of waste papers are showing a slightly better tendency though business here is far from what it should be at this period. Book papers in particular, have strengthened up perceptibly during the past fortnight and, together with the various lines of showings are now moving in a fairly good volume.

Pulp.

Ground Wood, No. 1, $17 to $19 per ton, f.o.b. mill
Ground Wood, No. 2, $15 to $16 per ton, f.o.b. mill
Unbleached sulphite, domestic, 2.05c. to 2.20c. per pound, delivered.
Unbleached sulphite, imported, $1\frac{3}{4}$c. to 2c. ex dock, New York.
Bleached sulphite, domestic, 2.90c. to 3c. per lb. delivered.
Bleached sulphite, imported, 2.70c. to 2.95c. per lb. ex dock, New York.
Easy bleaching sulphite, imported, 2.10c. to 2.20c. per lb. ex dock, New York.
Unbleached sulphate, imported, 1.80c. to 2.10c. per lb. ex dock, New York.
Bleached sulphate, imported, 2.60c. to 2.80c. per lb., ex dock, New York.
Kraft pulp, imported, 1.85c. to 1.95c. per lb., ex dock, New York.
Soda pulp, domestic, 2.15c. to $2\frac{1}{4}$c. per lb., delivered.
(All quotations of foreign products are made on a basis of ex duty.)

Paper.

Until several days ago the weather in and around New York has been unseasonably mild, and coupled with the generally poor business conditions throughout the country, a somewhat depressing effect has been quite noticeable during the past two weeks in the local paper trade. The movement of goods in retail lines has hardly measured up to the corresponding period of a year ago, and the demand for wrapping paper has naturally fallen off to a big extent. This was shown by the smaller returns of some of the local dealers, who report a lighter business at present than they have had for many months. If most customers of the coarse grades of paper were buying in any considerable quantities, instead of only lowering their current requirements (as they are doing) many of the mills throughout the country would not have to curtail their operations. The demand for goods from local jobbing houses is not apt to show any marked improvement now until after the first of the year, but it is the common belief that 1914 will bring with it many changes for the better. All lines of news are moving in better volume than any other grade and prices are on a more steady basis than they have been for many months. In fact several of the leading makers this week vouched the opinion that prices would from now on, not only be firmly maintained , but in all probability would show a decidedly upward tendency within the next few months. Notwithstanding the extremely poor movement in paper lines, prices throughout the list have been kept on an even basis. Quotations, therefore, are unchanged and continue as follows:

News, rolls, transient business, $1.95 to $2.00 f.o.b. mill.
News, sheet, $2.10 to $2.15 f.o.b. mill.
Book papers, car lots, C. & S. S., $4 to $4.20 f.o.b. mill.
Book papers, car lots, M.F.S., $3.75 to $3.90 f.o.b. mill.
Writing paper, superfine, 11c. to 13c. del. east of Miss. Riv.
Writing paper, extra fine, $10\frac{1}{2}$c., del. east of Miss. River.
Writing paper, No. 1, fine, 9c., del. east of Miss. River.
Writing paper, No. 2, fine, 8c. del. east of Miss Riv.
Writing paper, engine sized, $4\frac{1}{2}$c. to 8c. del. east of Miss. River.

GERMAN-AMERICAN PAPER CONTROVERSY

Washington, D.C., Dec. 2, 1913.

There have been no new developments of late in the pending controversy regarding German-American paper importations. The correspondent for Pulp and Paper Magazine to-day talked with one of the officials of the State Department as to the present status of the matter.

The official referred to stated that the State Department had requested the American Ambassador to present the matter to the proper authorities with the view to having Germany accord to the United States the same advantages which she had accorded to other countries, and to urge that inasmuch as the refusal of Germany heretofore to grant those advantages was based upon what she regarded as discrimination against her, growing out of the Canadian woodpulp proposition, now that that reason had disappeared, and in the light of the fact that our treaty was no longer in force, and the further fact that Canada no longer enjoyed the advantages, Germany ought to be willing now to accord the same favors to the United States that she was granting to the other nations.

So far as the United States Government can see, the argument is unanswerable. The American Ambassador has advised the State Department that he had made the request as directed, presenting the representations set forth, and is now awaiting the response of the German authorities.

It is understood that William Anderson, superintendent of the Milham Division of the Bryant Paper Co., Kalamazoo, Mich., has been appointed superintendent of the Kinleith Paper Mills at St. Catharines and will enter upon his duties shortly, succeeding A. A. Briggs, who has resigned. Mr. Anderson has had many years of practical experience and come highly recommended.

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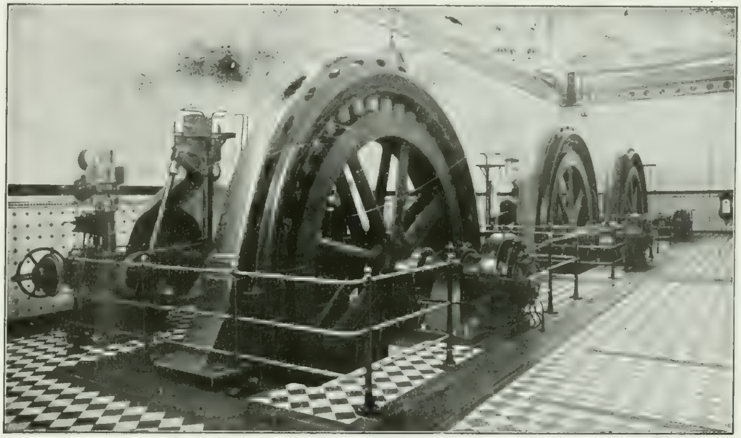

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British Trade News

(Special to the Pulp and Paper Magazine.)

London, November 29th, 1913.

Paper is at present used for all possible purposes in industries and in all possible forms. It has even been possible by means of compression to give it a degree of hardness comparable with stone, so that it can be used as a building material in the United Kingdom. The latest use for paper, however, is perhaps the most peculiar. A factory is in existence which is manufacturing circular saws from paper. These paper saws are used for the manufacture of fine furniture, veneer, and other thin plates of wood which must be treated especially carefully. Some time ago circular saws made from drawing papers were shown in an English exposition. The saws were driven by an electric motor, and produced fine boards, which could not have been made better even by the finest steel saw. The veneers made in this way are so smooth that the cabinet-makers can use them without further planing.

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Recently a strike occurred at the Guard Bridge Paper Works in Scotland and a settlement has now been effected. The management issued the following notice: "The management regret that in consequence of a strike by a part of the employees, they find it impossible to carry out the work. They are accordingly obliged to intimate that the works will be closed down on the 10th November and on such day the engagement between the company and its employees will be held to terminate. The management is, however, in the interests of the workers, prepared to keep as much of the machinery working as possible, and invite the names of those willing to work where required by the circumstances." About one dozen accepted the invitation, but in order to settle the dispute the company granted a general advance of 24 cents per week to all the employees to the number of between 400 and 500 hands. The strikers were holding out for 48 cents and in some cases 72 cents per week.

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Mr. George Fleming, who recently resigned the position of manager of the North of Ireland Paper Mill Co., Ltd. (the post now being occupied by Mr. Jas. Grant of Manchester) has obtained a financial interest in Messrs. L. Kynoch Ltd. mill at Dublin (Ireland). A small syndicate is going to run the Dublin mill, but Messrs. Kynoch will still hold a substantial interest in the concern.

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The Dowside Paper Mill, at Aberdeen, is having a new papermaking machine supplied by the well-known firm of Messrs. Charles Walmsley & Co., Ltd., Bury. By the end of the year the machine will be running.

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Wall-Paper Manufacturers, Ltd., for the year ended August 31, 1913, have made a profit of £189,674 and the directors announce a dividend at the rate of 3 per cent. making with the interim dividend 5 per cent. for the year. The Kellner-Partington Paper Pulp Co., Ltd., announced a dividend of 20 per cent., the gross profits for the year being £404,852 and the balance brought forward was £18,250. There is a reserve fund of £250,000. The company's properties in Manchester, Barrow, Borregaard, Edsvalla, Hallein and Villach now appear in the books as being worth £678,777.

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The Rt. Hon. The Lord Mayor of London (Sir T. Vansittart Bowater) has been installed Worshipful Master of the Guildhall Lodge of Freemasons in succession to the retiring Lord Mayor (Sir David Burnett.)

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The Paper Makers Association of Great Britain and Ireland, (Incorporated), have passed a resolution and placed it on their minutes, recording their appreciation of the good services rendered by their late secretary Mr. T. H. Edwards, who died on Nov. 13.

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For the week ending November 8 Canada exported to England 5,847 tons of mechanical wet pulp valued at £16,407 and Newfoundland 3,570 tons valued at £9,335. These shipments exceeded supplies received in England from Norway and Sweden. Canada also shipped 83 tons of bleached Chemical dry pulp valued at £975.

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The Anglo-Newfoundland Development Co. report that for the year ended August 31, 1913, the profits were £65,054, compared with £34,665 in 1911, and £51,233 in 1912. The report states that the output of the mill is increasing and the quality of the pulp and paper produced by them continues to give satisfaction. The output of the mill for the whole of next year has already been sold. Some improvement, the report adds, has been made in the cost of manufacturing the paper, but this was offset by the heavy rise in the price of coal, and partly, also, by the high freight rates. "Recent changes," it concludes, "in the customs tariff of the United States, which include the removal of the duty on pulp and newsprint should ultimately have a favorable effect on this company in throwing open a new and important market for its production."

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